MODERN SHOPFRONT CONSTRUCTION

TREVOR PERRY

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MODERN
SHOPFRONT CONSTRUCTION

A Small Modern Shopfront Kidderminster. *Designed by the Author.*

Modern Shopfront Construction

A Treatise on the designing and construction of the modern shopfront, containing a full description of the procedure adopted from the preliminary survey to the completion of the work, including actual examples of work executed

TREVOR PERRY

SECOND EDITION REVISED

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PREFACE
TO THE FIRST EDITION

THE art of shopfront design and construction has reached such a degree of perfection during the past decade that it has now become a specialised branch of the building trade, with the result that the various methods adopted in this class of work are rather vague to many engaged in the other branches of the building industry and architectural profession.

This subject has received such little attention through the medium of architectural and building text-books that the Author is assured that a concise book on this class of work is much needed.

Therefore the purport of this work is to place before its readers in a plain, simple, and perfectly intelligible manner the treatment of the modern shopfront. In conclusion, the Author desires to express his gratitude for the assistance given by firms of shopfitters who have contributed photographs and data necessary for a work of this description.

TREVOR PERRY.

BIRMINGHAM.

PREFACE
TO THE SECOND EDITION

THIS edition is the result of a careful revision, in the course of which several new examples of work executed since the 1939-1945 war period have been included.

The whole of the text has been revised and all technical data brought right up to date.

Finally, and in conclusion, I offer my sincere thanks for the valuable help and assistance accorded to me in this revision by the firms of Shopfitters mentioned in the text, who have so kindly contributed data and photographs necessary for a work of this description.

TREVOR PERRY

BIRMINGHAM.
1949.

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Modern Shopfront Construction

CHAPTER I

INTRODUCTION

THE commercial and æsthetic developments which have taken place during the past decade in the treatment of shopfront design and construction clearly show that after a long period of neglect this problem is at last receiving the attention it deserves, and that the majority of shopkeepers are now no longer content to leave the treatment of their new fronts to the tender mercies of any one but those who have made a study of this specialised branch of the building trade.

In days gone by, little or no consideration was given to the design and treatment of the shopfront, and as long as there was a decent expanse of plate glass and plenty of unnecessary ornament, this appeared to be all that was required from the merchants' point of view, irrespective of the kind of business carried on.

To-day this is all changed. The shopfront has now become an important factor in our everyday life, and in consequence many of the shops now fitted up are constructed in the most permanent manner of the richest materials obtainable. Rich, restful, handsome effects, and greater

dignity are now sought for in place of the gaudy, bizarre appearance so common prior to the First World War.

The modern shopfront is essentially a problem requiring artistic consideration, and its many aspects present great opportunities where skill and taste can be displayed to great advantage.

It is not only the area given over to the display of goods that counts, but to be effective it must have a proper setting, which is the front itself—in fact it can be likened to a picture which can be either made or marred by the frame in which it is set.

Therefore the modern front should be designed from the standpoint of correct display for a given line of merchandise, this being the first and most important consideration.

The rapid advance of science and commerce to-day has brought street architecture very much to the fore. This is an age of speeding up. The automobile and the aeroplane have speeded up travel. The radio has speeded up the dissemination of world news. Invention has speeded up production. We are hurrying faster than ever before. New modern shopfronts are speeding up selling.

Merchants to-day are selling to a public that is in a hurry, therefore the shopfront should be so designed with a view to attracting the public and giving, as it were, an invitation for closer inspection—in fact, it should be a silent salesman.

It has now become more and more recognised that an appropriate shopfront is in itself a commercial asset of no small value.

In the following pages of this book a complete treatise of the shopfitter's art and craft as applied to shopfront design and construction will be given, with such notes on the various materials and workshop practice as may be of use to the architect, craftsman, and student alike.

CHAPTER II

CHARACTERISTICS OF SHOPFRONTS

THE characteristic properties of shopfronts vary very widely, according to the nature of the businesses concerned. It is therefore essential that the design, and to a great extent the construction, adopted should conform to the general requirements of each individual trade—that is, due consideration should always be given to the class of merchandise for the purpose of efficient display. This does not mean to imply that the scope of the architect or designer is in any way limited to each kind of trade, but that the general scheme should be so planned and arranged as to give maximum display to the best advantage. This consideration mainly concerns the planning of the window spaces; the surrounding work to the front, consisting of facia, pilasters, and dados, which set off the front itself, can be carried out in all manner of forms and thus give unlimited scope in the matter of design and treatment.

With the exception of multiple stores, such as co operative societies, etc., shopfronts vary in all manner of ways, but in all cases it will be found that each type of front has a characteristic of its own, according to the kind of trade carried on.

For instance, to quote a very obvious example, the display area given over to a furnisher's or motor dealer's is entirely different in all respects to that given over to a

confectioner's or butcher's, although the general treatment of the shopfront surround could be to a certain degree similar.

It should always be borne in mind that the shopfront has a double purpose to serve, one being a trade-getting medium and the other an architectural feature, and in this lies the art of successful shopfront design.

From a commercial point of view the shopfront is highly important, and the better and more artistic the general appearance of the front and window arrangement, the better the impression received by the passers-by.

The consideration of trade requirements can never be overestimated, and this fact should be the primary motive in the preparation of drawings relating to the design and construction of the shopfront.

It is really impossible in a work of this description to give a full list of requirements covering all trades, and the only satisfactory way of ascertaining these essential facts is by observation of the shops around us.

To give an idea of what is really meant by trade requirements, the following examples will no doubt suffice.

Motor agents and furniture and antique dealers will require an extensive display area at a very low level, so that a full view of their goods can be obtained from the exterior of the premises, whereas the confectioner, hairdresser, chemist, and hosier will require little display space, which is brought nearer the eye level of the passer-by, the window-bed or bottom being of sufficient height for small articles to be easily seen at a glance.

The only trades in which special consideration has to be given in the choice of materials and fittings are provision merchants and butchers, and in these two cases marble and

tiles play an important part in addition to the provision of hanging rails and special fitments.

While on this subject, it is perhaps worth while to mention that each type of front should have a characteristic of its own relative to the trade carried on, and designed so that the kind of business can be ascertained at a glance by the passer-by.

CHAPTER III

MATERIALS

MATERIALS now available for use in shopfront construction are many and varied, and for a work of this description it is rather essential that a review be given of the materials which are now used in this branch of the building trade.

The chief timbers used for finished work are of the hardwood variety, although in cheap work soft woods are resorted to.

With regard to hard woods, oak, mahogany, teak, and walnut are by far the most suitable for both outside and inside work.

With reference to soft woods, canary wood and deal are quite all right for jobs of a cheap nature, but are not to be recommended in good-class work.

Metal work has come very much to the fore in latter years, its adaptability and permanence being an important feature.

The chief metals now used are bronze, stainless steel, silveroid, monel metal, and white metal.

These metals are in the form of sheet, drawn to various sections on hardwood cores, some examples of these sections being given in the following chapters and plates. For drawn work, as stated above, 18 B.W.G. is the thickness of metal used, but where the metal is used in sheet form, such as for kicking plates and facias, the gauge should be heavier, 14 to 16 B.W.G.

White metal, stainless steel, monel metal, and silveroid are in appearance all the same, being like silver, although the quality and cost varies owing to the mixture and manufacture. Bronze metal, or gun-metal as it is sometimes termed, consists of an alloy containing 90 per cent. copper, and is supplied by the rolling mills in rolls of varying widths as required, although 12 in. is the stock width.

Solid sections are now available in bronze metal, known as manganese bronze, the various sections being drawn in the solid or, as it is termed, "extruded," and is composed of an alloy containing a large percentage of bronze, which is quite suitable for exterior moulded work. An example of extruded sections is given in Fig. 1. The use of these sections for sash work is not very extensive, owing to the extra cost of drilling and tapping which is necessary for the fixing of glazing beads.

Granite, marble, and stone play very important parts in shopfront work, and the various kinds available are very numerous; a brief review of the most common kinds will no doubt be very welcome.

Granite.—This natural stone can now be had in many varieties, many of which are of the most beautiful finish, the usual thickness used being $1\frac{1}{2}$ to 2 in., the face sizes of the slabs varying according to requirements. Among the most common varieties to be had are emerald pearl, blue pearl, Balmoral red, Cornish grey, Aberdeen grey, black, and red and black Bon Accord.

Marble.—Marble is now used for all manner of purposes, including facias, pilasters, dados, walls, and flooring, just to mention a few, and can be had in slabs of all reasonable sizes, thicknesses being from $\frac{1}{2}$ to $1\frac{1}{2}$ in., although unless specially stated it is $\frac{3}{4}$ in.

As in granite, there are a great many varieties, the most

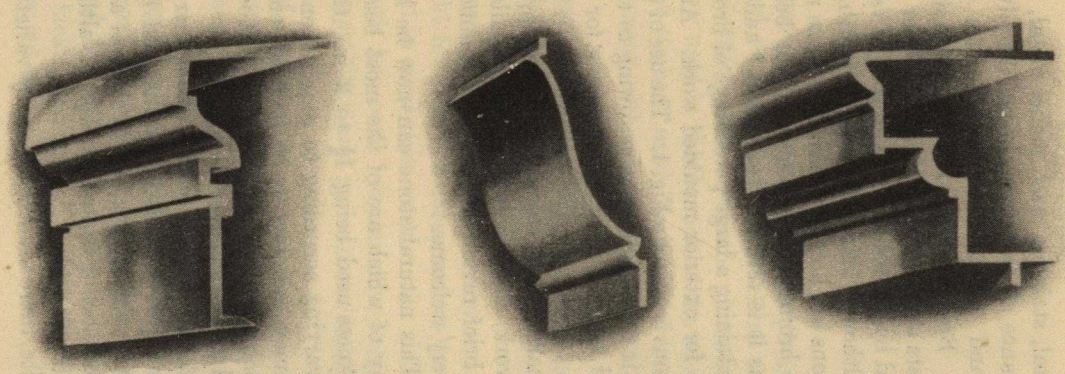

FIG. 1.—Extruded Metal Sections.

well known in the shopfitting trade being cedar onyx, St Annes, verte tinos, white Sicilian, blue Belge, yellow Pavonazzo, Roman stone, Napoleon stone, Napoleon melange, and verde-antico.

Stone.—The only stone which appears to lend itself to shopfront work is Hopton Wood stone, quarried in Derbyshire, and can be had in slabs of all sizes and thicknesses. It has the appearance of Portland stone, but is of a light buff colour.

Artificial marbles also play an important part in the shopfitter's work, and are exact reproductions of the natural stones, but of course the finish does not come up to the natural product.

One of the greatest boons to-day is metal-faced plywood, known as "Plymax," and its uses are very numerous and simplify construction considerably.

Another useful product now on the market is "Vividek" glass, which, in the opinion of many, has a great future, and will no doubt in a very short time supersede embossed and sand-blasted glass work. This glass is composed of natural-coloured glass, in small globular or granular form, worked to a design, and sealed in between two plates of clear glass for protection. The designs executed in this glass are worked out by means of very fine copper strips. The effect given by both day and night is excellent, and the natural colours of the glass globules cause a scintillating effect. As regards wear and tear, it is far superior to either embossed or sand-blasted glass, and keeps far cleaner owing to the work being enclosed, also the range of colours and designs are far more numerous.

Although erring on the side of briefness, this chapter will give an insight into the kinds of materials now favoured in shopfront construction, although the list of materials

could be increased considerably, but as it is understood that the reader interested in this class of work will naturally be acquainted with the building trade, it is really unnecessary to mention materials and their properties which form the basis of building construction.

CHAPTER IV

PRELIMINARY SURVEYS — TAKING SIZES — ALTERATIONS AND NEW WORK — LOCAL BYE-LAWS

Preliminary Surveys

When an inquiry is received regarding the erection of a new shopfront, a preliminary survey should be made of the existing premises for the purpose of estimating and preparing designs of the proposed new work.

This survey should not only include the taking of sizes, but full particulars should be noted regarding the class of business carried on, the position of the premises, nature of existing work, whether a sunblind is required, width of pavement, and above all, the styles and types of the adjoining premises.

It is always as well to take notes of the adjoining premises so that the design submitted will not in any way bear any resemblance.

The reason for taking particulars of the pavement width is for the purpose of governing the throw-out of the new sunblind. In the case of existing shopfronts, notes should be made regarding the possibility of re-using any of the existing materials, especially if a very keen price has to be given for the new work.

The sizes taken should be as full as possible, so that an accurate estimate can be ascertained.

It may be mentioned that after an estimate has been accepted, another and more accurate survey is made by the craftsman who is instructed to set out the work in the shops, the reason for this being that in the preliminary survey it is generally impossible to pull any of the existing work away to procure nett wall to wall sizes, and to determine the exact nature of the joist or beam supporting the superstructure, also, it always acts as a check on the first survey taken.

Taking Sizes

The taking of sizes for the actual preparation of the work requires great accuracy, and no detail in this respect is too small to take notice of.

The illustration (Plate I.) shows the method usually adopted for taking dimensions, and, as will be seen, it is not only necessary to take particulars of the work having an actual bearing on the new work, but that which is indirectly concerned, such as the heights of first-floor window sills both inside and out, and also the floor joists.

The use of a datum in all cases is very essential for the procuring of heights.

The datum line not only forms a level for ascertaining heights, but in doing so determines the exact slope of the pavement. This line should always be tested before measurements are taken with a spirit level, and should be stretched as tight as possible so as not to sag in the centre.

For this purpose strong cord is usually employed, being fixed at its extremities by means of strong nails or holdfasts driven into the brick or stonework of the piers flanking the opening which is to receive the new work.

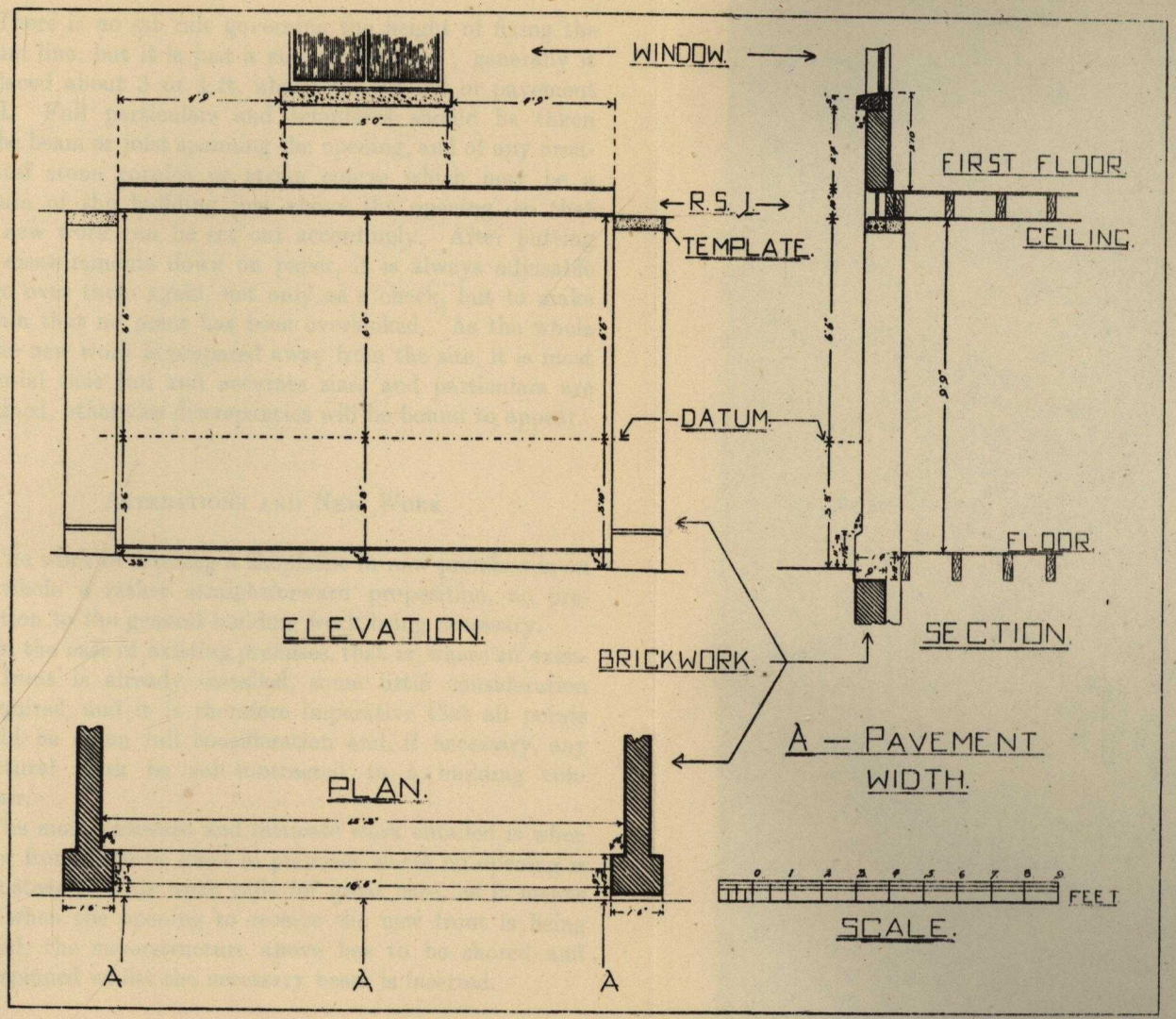

PLATE I.—Taking Sizes for Shopfront Work.

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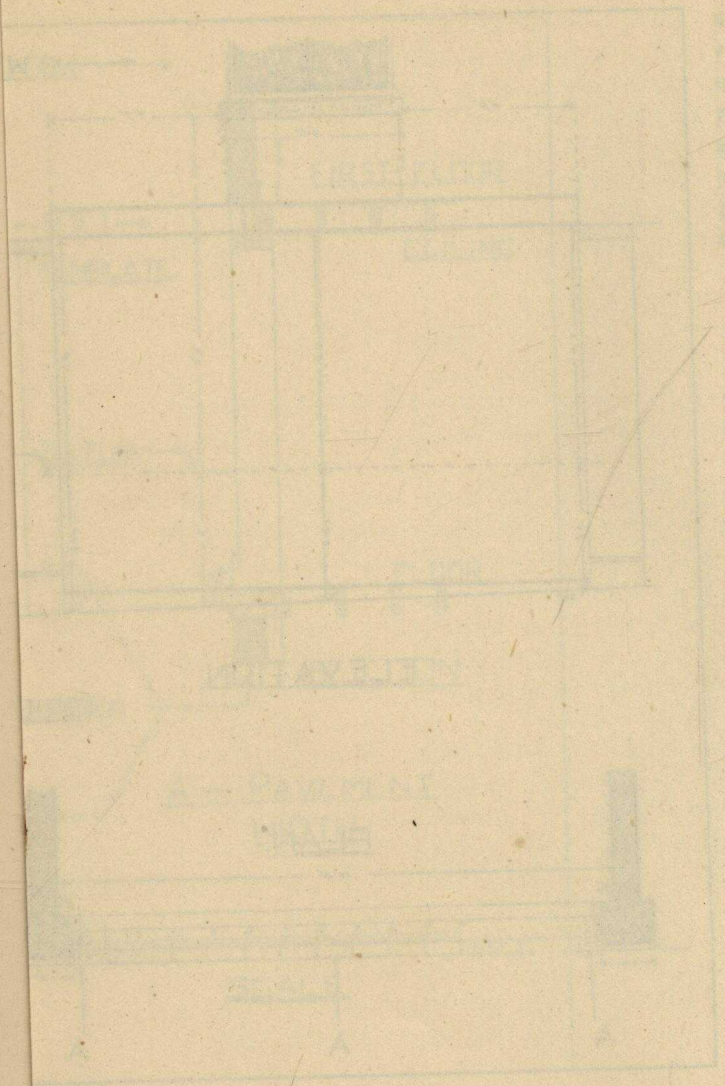

There is no set rule governing the height of fixing the datum line, but it is just a matter of choice ; generally it is placed about 3 or 4 ft. above the ground or pavement level. Full particulars and templates should be taken of the beam or joist spanning the opening, and of any ornamental stone cornice or string course which may be a feature of the building just above the opening, so that the new work can be set out accordingly. After putting the measurements down on paper, it is always advisable to go over them again, not only as a check, but to make certain that no point has been overlooked. As the whole of the new work is prepared away from the site, it is most essential that full and accurate sizes and particulars are obtained, otherwise discrepancies will be bound to appear.

Alterations and New Work

The work of erecting a shopfront in new premises is on the whole a rather straightforward proposition, no preparation to the general building work being necessary.

In the case of existing premises, that is, where an existing front is already installed, some little consideration is required, and it is therefore imperative that all points should be given full consideration and, if necessary, any structural work be sub-contracted to a building contractor.

The most awkward and intricate work entailed is when a new front is to be fixed in premises where no opening is in existence. This work calls for great care, as it means that when the opening to receive the new front is being formed, the superstructure above has to be shored and underpinned whilst the necessary beam is inserted.

Local Bye-laws

It is always essential when contemplating new work to ascertain the various laws laid down by the particular district concerned relating to new work.

Under the heading of preliminary surveys, reference was made to the width of the pavement for the purpose of governing the throw-out of the sunblind.

This measurement is a very necessary factor with regard to the bye-laws, as it is usually stated that the throw-out of the sunblind should be at least 6 in. back from the kerb line of the pavement, but of course this varies in most districts. The height of the sunblind rail when the blind is extended is generally laid down as 7 ft. above the pavement, but of course this is likely to vary in different localities. As in general building work, necessary notices should be forwarded to the local authorities, and in the case of alterations, plans showing the line of the new work in relation to the existing should always be submitted before the new work is commenced.

CHAPTER V

PLANNING AND PREPARING DRAWINGS—SPECIFICATIONS AND THEIR ORDER—PROFITS ON ESTIMATED COSTS

Planning and Preparing Drawings

Apart from design, planning to the best advantage is without doubt the basis of efficient and successful shopfitting. This does not only apply to work in respect of existing premises, but is of equal importance to new buildings, as in both cases the new shopfront work has to fit within previously determined limits, and this is where the skill of the draughtsman is put to test.

Many cases arise where a new front is to be erected in place of an existing one, and certain conditions and restrictions are enforced stipulating that certain portions of the structural work are not to be altered but to be embodied in the new scheme: and this is where the draughtsman's knowledge of the practical side of building construction is essential. It is a very simple matter to the experienced man to plan and design a shopfront, but it is the knowledge of construction which will enable the work to be carried through without a hitch. The main idea to be considered when planning is to set out to the greatest advantage the display area required without sacrificing space necessary for entry to the premises, at the same time keeping in

mind the class of business carried on and the type of goods to be displayed.

It is the practice among good-class shopfitters to submit to their clients a coloured perspective drawing of the proposed work on which their estimate is based, this usually being drawn to a large scale, sufficient to bring out the details of the front—1½-in. scale being the average used. For use in the estimating department and workshops, the drawings should be drawn to ½-in. scale, and should show plan, elevation (flat), and sections, with any special work drawn to full or half-full sizes. Of course in a great many instances a flat elevation, plan, and section is submitted to the client, and in such a case the drawing submitted would be as the one shown in Plate II. (facing this page),—in actual practice the plan, elevation, and section being on one drawing.

Specifications and their Order

The object of a specification is to supply information which cannot be shown on the drawings, such as the kind and quality of the materials to be used, and also to describe the methods of construction.

In all cases, no matter whether the work is large or small, a full specification should always supplement the drawings, and all items contained therein must be in strict accordance with the drawings and details, each item being concise and to the point. This branch of the business comes within the province of the estimating department, and it is therefore necessary that the estimator should have a thorough knowledge of the principles of construction and be fully conversant with the various materials used.

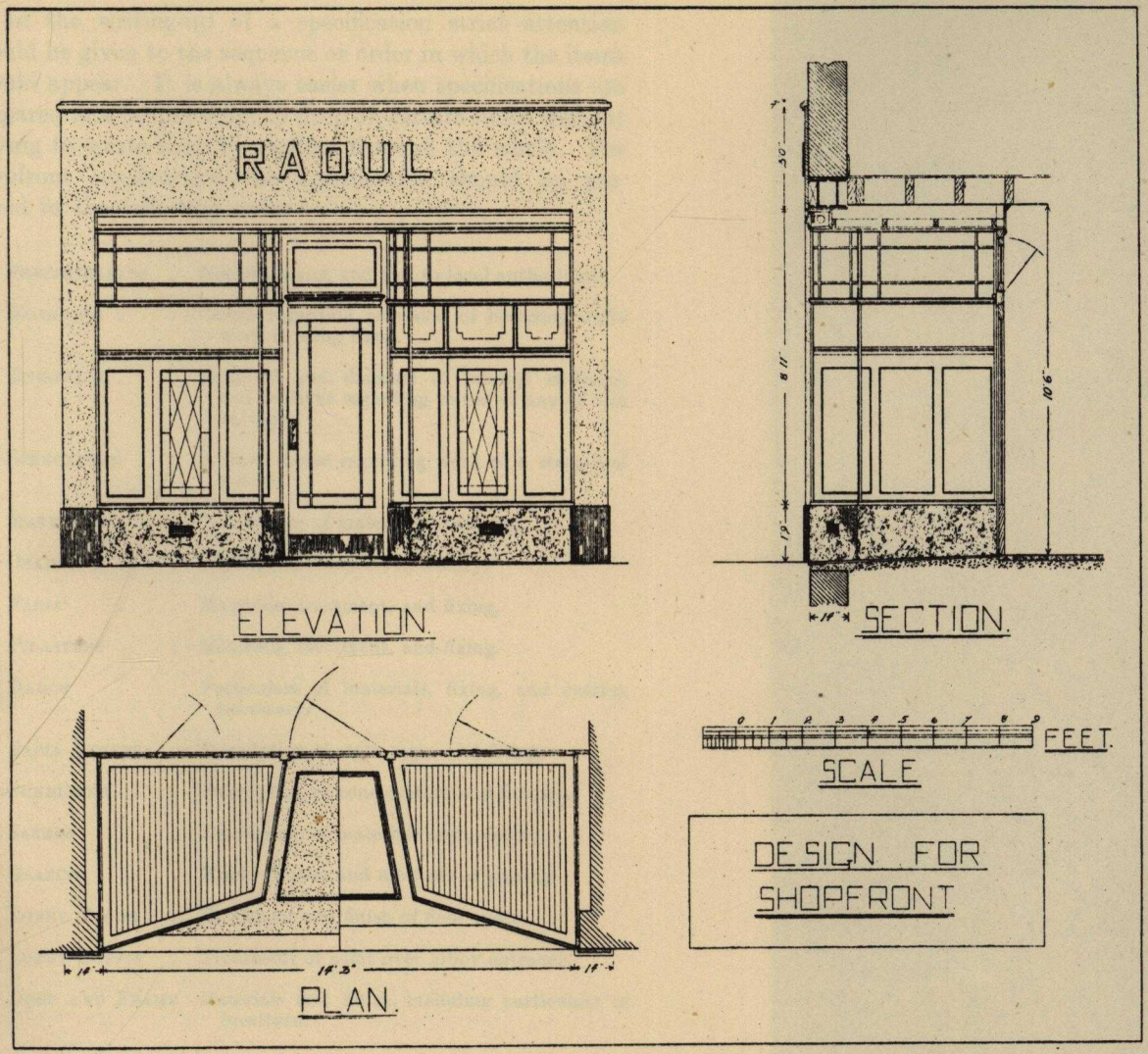

Plate II.—Example of Shopfitter's Plans.

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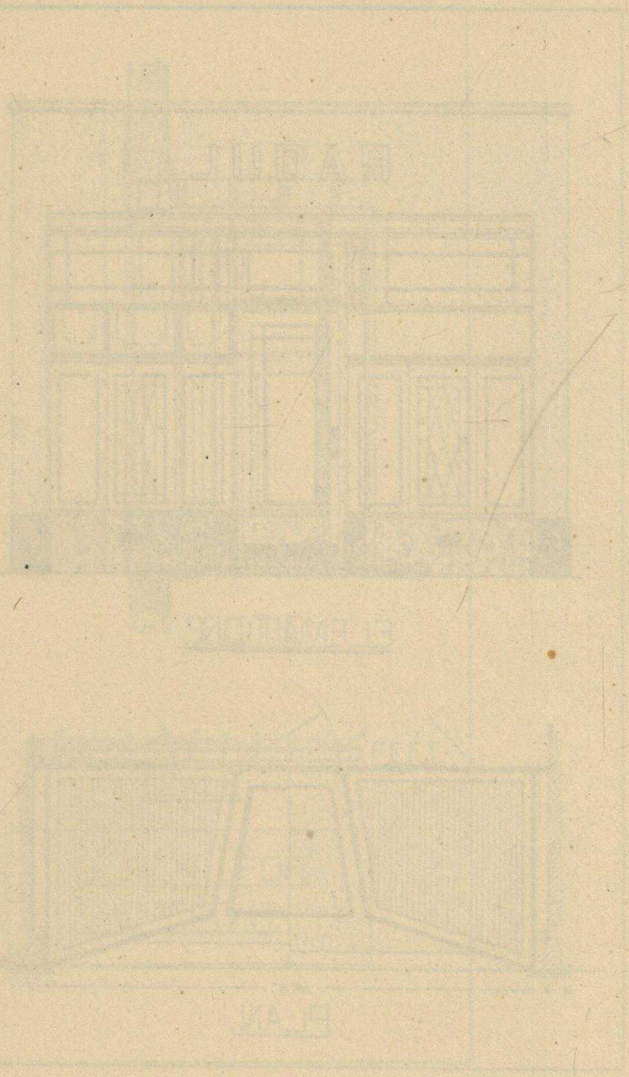

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In the writing-up of a specification strict attention should be given to the sequence or order in which the items should appear. It is always easier when specifications are prepared in a proper order to drop on certain items without having to waste time by reading through the whole. For shopfront construction the specification should be prepared in the following order :—

1. Preliminaries .	Notices, plans, and fees to local authorities.
2. Hoarding . .	Clause regarding provision of hoarding while work is being fixed.
3. Removals . .	Removal and disposal of salvage material, and remarks regarding re-use of any of this salvage.
4. Structural .	A brief clause regarding work of a structural nature.
5. Materials . .	Description of materials to be used.
6. Cradling . .	Cradling and bearers necessary.
7. Facia . .	Materials, treatment, and fixing.
8. Pilasters . .	Materials, treatment, and fixing.
9. Dados . .	Particulars of materials, fixing, and cutting necessary.
10. Facia Letters .	Description of style, type, and fixing.
11. Sunblinds . .	Description of construction and fittings.
12. Sashes . .	Description of materials and jointing.
13. Glazing . .	Kinds of glass and methods of glazing.
14. Lobby Floor .	Treatment and finish of floor space.
15. Lobby Soffit .	Treatment of soffit over lobby entrance.
16. Door and Frame	Materials and finish, including particulars of furniture.

17. Bearers . .	Description of window-bottom bearers and window-bed.
18. Window Bottoms	Type, style, and finish of window bottoms.
19. Risers . .	Particulars of risers, if any, and dado framing to shop side of window.
20. Enclosures .	Description of style and finish of the window enclosures.
21. Casing . .	Information regarding any casing necessary to hide any work of a structural nature.
22. Panelling . .	Particulars of any wall panelling and window-end treatment.
23. Window Soffit .	Treatment to the soffit or ceiling of display windows.
24. Signs . . .	Particulars of any special hanging signs, either to the interior or exterior of the shop.
25. Gates . .	Particulars of materials and finish of shopfront gates.
26. Generally. .	Remarks regarding work being carried out in a satisfactory manner, and any reference to penalties.

Of course the text of the specification will vary according to the work described, and it would serve no useful purpose in giving an example without accompanying drawings, so in this chapter an actual example will not be given. An example of a typical specification is given in the following chapter, which treats a shopfront from survey to completion.

Profits on Estimated Costs

Owing to keen competition which is prevalent in these days, no hard-and-fast rule can be laid down regarding

profits on the cost of shopfront work, but the following data will give a good idea of the average percentages used in connection with this class of work.

These profits, or rather percentages, are in connection with the fixing of shopfronts only.

For an average standard type of front of a fairly expensive nature, 15 per cent. can be added on to the total of the estimate.

For one of a cheap nature, with the exposed work being of deal and imitation granite, anything from 20 per cent. to 25 per cent. can be added.

If the greater portion of the work is in bronze metal, stainless steel or silveroid, which increases the cost of the work, 15 per cent. will be sufficient.

In addition to the above fixing profits, must be added in all cases about 15 per cent. for foreman's charges. And of course, in addition to these, will be overhead charges which it is impossible to treat, as every firm varies in this respect.

CHAPTER VI

A SMALL SHOPFRONT, TREATED FROM SURVEY TO COMPLETION

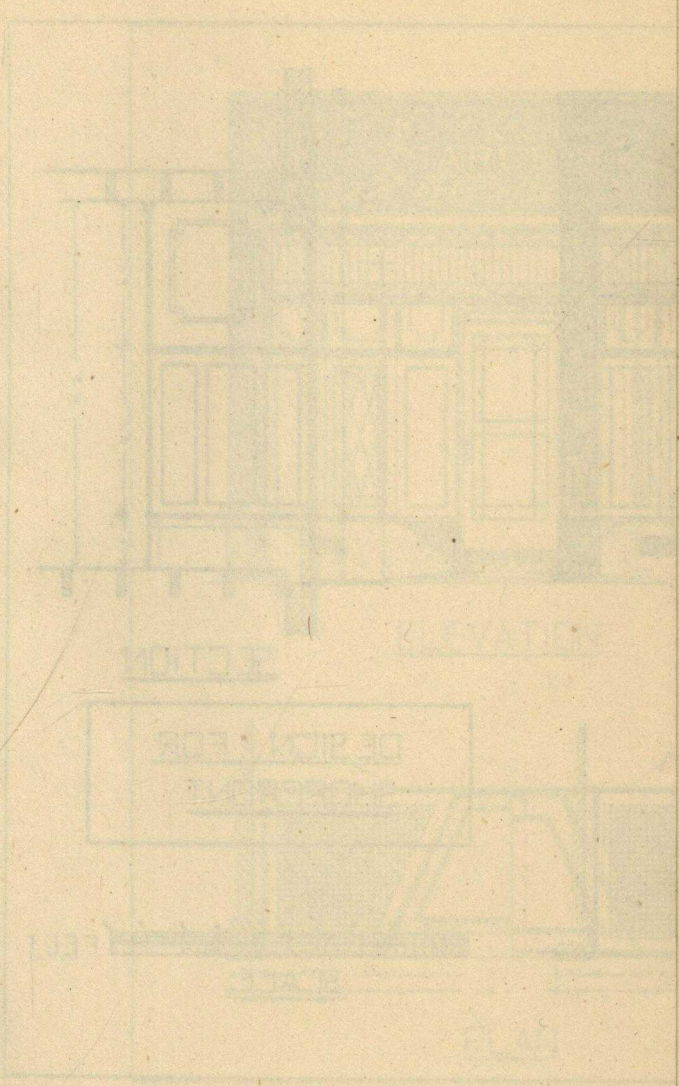
In this chapter, dealing with the work entailed in the construction and erection of a small modern front, there will have to be certain facts assumed to enable the following descriptions to be readily and thoroughly understood.

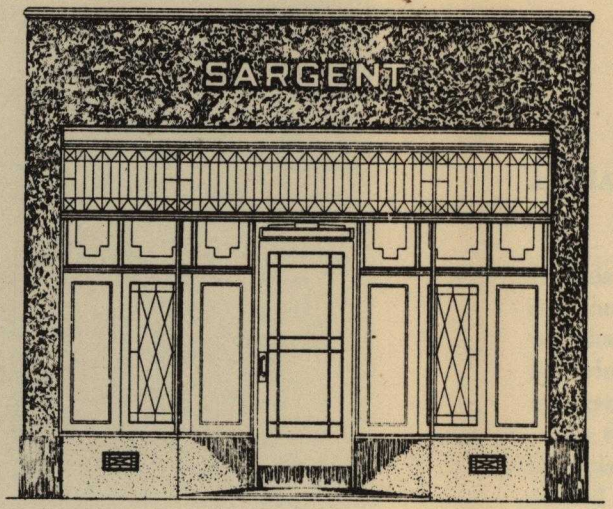
In the first place, it is assumed that the work described is replacing an existing front; and secondly, the trade carried on is that of a milliner and ladies' outfitters, although the type and style of front would be just as suitable for many other classes of trade, such as gent.'s outfitters, ladies' outfitters, hosiers, tailors, radio and musical instrument dealers, art dealers, and electrical and gas showrooms, just to mention a few.

On receipt of an inquiry regarding a proposed new front, the shopfitting firm approached immediately sends a representative to interview the client and at the same time to take a preliminary survey of the premises for the purposes of preparing designs and estimates.

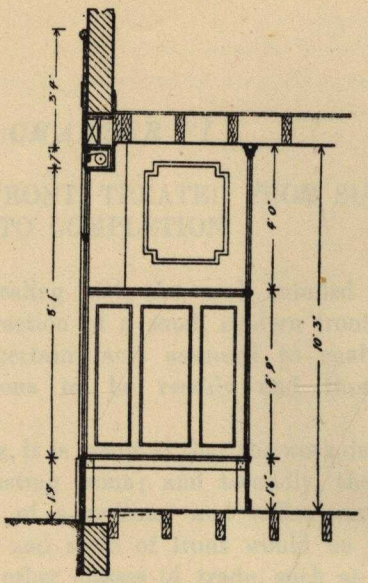
After the acceptance of one of the designs and estimates, in the case of more than one scheme being submitted, the contract is signed, and preparations are then made for putting the work in hand.

In the case of a perspective drawing being submitted

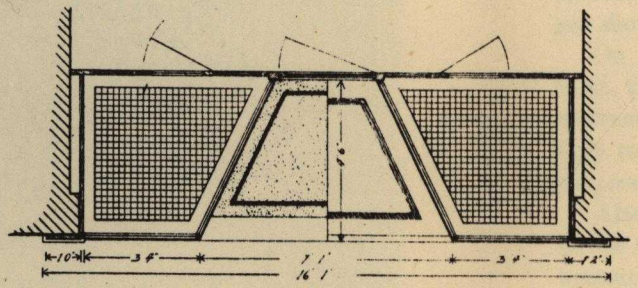




ELEVATION

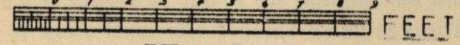


SECTION



PLAN

DESIGN FOR SHOPFRONT.



SCALE

PLATE III.—Design for Shopfront Described.

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and approved, another drawing is prepared for the use of the works, and such a drawing would be as the one shown in Plate III., on which this chapter is based.

After these preliminaries have been completed, the drawing and specification is then passed into the shops for the actual work to be proceeded with.

Before proceeding further, a specification in accordance with the drawings illustrated in Plate III. will be given in the same manner and order as those prepared by shopfitters.

The specification used in the works and on the site is an exact copy of the one submitted to the client, and is usually prepared in triplicate, one copy being in the hands of the client and the other two being for office and works use.

Specification of Proposed New Shopfront

For MESSRS SARGENT

At 105 High Street, Maidstone

Preliminaries .	. The shopfitter to submit plans and pay all fees necessary to the local authorities.
Hoarding .	. The premises to be enclosed during the progress of the work with a close-boarded hoarding, and removed on completion of the contract.
Removals .	. All existing work and materials to be removed from the site, same to become the property of the shopfitter.
Structural .	. No amount has been included in the estimate for any work of a structural nature, as same is presumed not necessary.
Materials .	. The whole of the exposed woodwork of entrance door, door frame and fanlight, enclosure framing, etc., to be of thoroughly well-

Materials—*contd.*

seasoned oak, stained and french polished a good medium shade.

The shopfront sashes to be carried out in bronze metal drawn on hardwood cores to approved sections, polished, and left to tone down by natural atmospheric action. The surround to the front, comprising facia and pilasters, to be of "Napoleon melange" marble, well polished on all exposed surfaces and edges.

The dados and plinths to the pilasters to be carried out in "emerald pearl" granite, highly polished on all exposed surfaces and edges. The whole of the woodwork used in the construction of the front to be of deal, sound and free from any imperfections.

CRADLING . . Provide and fix deal cradling to the R.S.J. supporting the superstructure for the reception of the facia.

FACIA AND PILASTERS Provide and fix around the frontage architrave comprising facia and pilasters of "Napoleon melange" marble in accordance with drawings.

The marble to be in suitable-sized slabs ¾ in. thick, and all butting joints to be neatly made and finished with coloured cement.

The top of the facia to be finished with a weathered and throated deal cornice, spray cellulose enamelled to match the marble work; the top of the cornice being flashed with 5 lb. sheet lead tucked into the brickwork at the back.

DADOS . . . Provide and fix to the bases of the front and return sashes dados consisting of 2-in. thick emerald pearl granite, having the top edges slightly bullnosed and the exposed surfaces and edges highly polished. All butt joints to be neatly made and filled with coloured cement.

The front dados to be prepared to receive a vent panel in each as shown on the drawings, each vent being of an approved design, carried out in cast-bronze metal and held in position by means of bolts and straps fixed from behind. The size of each vent to be 12 in. by 8 in. overall. The whole of the dados to be securely fixed to stout deal

Dados—*contd.* framework forming the window-bottom bearers.

The plinths to the pilasters to be all as above, and fixed so as to project from the face of the pilasters 1 in.

FACIA LETTERS . Provide and fix to the facia, as shown on drawings, cast-bronze metal letters 9 in. high to the style shown, reading "SARGENT," secured to the marble work by means of bronze metal bolts, nuts, and ½-in. spacing washers.

SUNBLIND . . Provide and fix to underside of facia sunblind consisting of a 3½-in. best spring-action barrel roller, housed in a deal box lined with sheet zinc, the exposed portions of the box being faced with oak. The front rail to be of bronze metal drawn on a hardwood core and fitted with straps and pull-down plate. The arms and slides to be of steel kupronised, and the fittings of cast-bronze metal. Storm chains to be provided and fixed at the extremities of the blind.

The material to be 21 oz. white duck, fixed securely to the roller and front rail.

SASHES . . . Provide and fix, as indicated on plans, 18 B.W.G. drawn bronze metal sashes, comprising heads, sills, stiles, angle bars, and transome rails.

The whole of the members to be drawn on hardwood cores to approved sections, the exposed portions of the cores to be french polished to match the remainder of the woodwork. The metal work of the sashes to be highly polished and left to tone down by atmospheric action to a deep chocolate colour. The whole of the work to be morticed and tenoned together and fixed in a proper manner.

GLAZING . . . The front and return sashes below the transom to be glazed with ¼-in. best British polished plate glass, well bedded in coloured putty and secured by means of oak glazing beads fixed with brass cups and screws, the beads being polished to match the rest of the work.

The transom plates to be of copperlites to

Glazing—*contd.*

the design shown, and fixed by means of oak fillets screwed to the rebates of the sash members.

Provision to be made for portions of the lights to open on the hopper principle for ventilating purposes.

The plate to the entrance door to be of ¼-in. British polished plate glass, glazed by means of oak glazing beads and coloured putty. The plates to the upper parts of the enclosures to be of ¼-in. British polished plate glass, glazed in the same manner as the sash and door plates, and to have in each case a single acid-embossed border line as shown on the drawings.

LOBBY FLOOR . . Prepare and lay to the entrance, concrete to fall, screed same, and lay terrazzo flooring of grey chippings with a black border. The lobby to be finished at the front with a 9-in. wide by 1½-in. white Sicilian marble step in suitable-sized slabs well butted and cemented together.

LOBBY SOFFIT . . Provide and fix to soffit compo boarding with fibrous plaster moulding planted on, the whole being painted and finished flat white.

DOOR AND FRAME . Provide and fix where shown on plan oak entrance door and frame. The door to be out of 2-in. material hung on 1½ pairs of steel-washered brass butts to rebated and moulded door frame. The door to be flush panelled, and divided up where glazed with oak marginal bars as shown. The door to be fitted with a plain bronze metal kicking plate on the outside of the bottom rail. The door to be fitted with a pair of bronze metal grips, Bales catch, and Yale lock night-latch.

Provide and fix above the door an oak pediment to the design shown on drawings. The fanlight above the door to be of oak glazed with clear plate glass and made to hinge, and fitted complete with leggott opener complete with cords and pulleys.

WINDOW BOTTOMS . Provide and fix to both windows necessary deal bearers, and lay thereon T. & G. flooring, finished with ¼-in. thick oak parquetry with a walnut border line as shown on the plan.

Window Bottoms—*contd.* The backs of the bottoms where exposed to the shop to be finished with matchboarding and a skirting mould, the whole being treated to match the finish of the rest of the woodwork.

The window bottoms to be prepared for and to receive two 9-in. by 3-in. slotted cast-bronze metal vents near the sash plate in each window, the vents being rebated into the bottoms so as to finish flush.

ENCLOSURES . . The enclosures to be of oak, framed up, and panelled and glazed as shown, the lower portions being panelled with oak-faced plywood and the upper portions glazed.

Provide and fix to openings one door to each window, same being glazed with leaded lights to the design shown.

Each door to be hung on 1½ pairs of brass butts and fitted with a knickle-plated turnbuckle catch.

CASING . . . The back of the blindbox where exposed to the interior of the windows to be cased in with matchboarding, finished and painted flat white.

PANELLING . . Provide and fix to window ends oak framing panelled with oak-faced plywood, the whole being surmounted with a cornice mould and narrow shelf for the display of light articles.

The walls above the panelling to be papered anaglypta of an approved design.

WINDOW SOFFITS . The soffits to the display windows to be made good where necessary, and painted and finished flat white.

LIGHTING . . . No provision has been made in the estimate for electric lighting, same being carried out under separate contract.

GENERALLY . . The whole of the above work to be carried out in a proper and workmanlike manner to the entire satisfaction of the customer.

In event of the contract being placed, sizes are to be taken from the site and the work carried out in accordance with the contract drawings.

Where necessary, full-sized settings out and

Generally—*contd.*

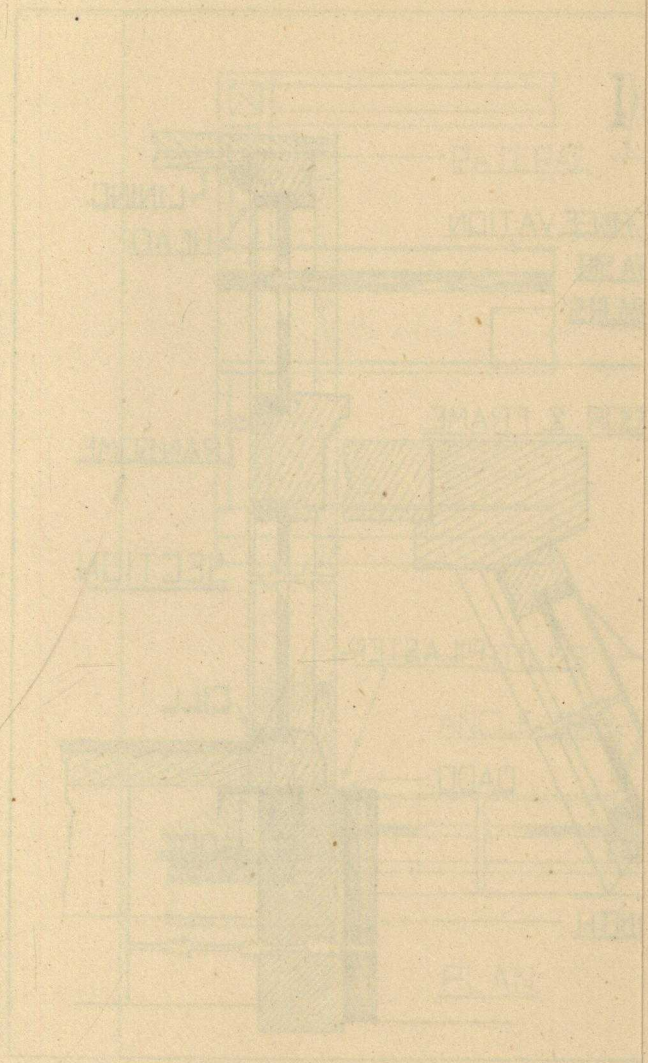
samples of materials to be submitted for approval.

Any defects appearing in the work within a period of three months from completion of the contract to be rectified at the expense of the contractor.

It will have been noted that reference to the estimate is quoted in the text of the specification; this is due to the fact that the original copy of the specification in all cases forms part of the estimate.

When the drawings and specification are passed into the works, they are handed by the general foreman to the setter-out detailed for the particular contract, and it is his work to take sizes, as described in Chapter IV., set out the work on boards and rods, full size, book up the materials required, and pass to the offices particulars and quantities of materials, fittings, and furniture which have to be purchased from outside sources. To a certain extent the setter-out supervises the work as it proceeds through the shops. As the setting out proceeds, the woodwork and metal work are prepared and assembled in the various shops, where they are finally checked over by the setter-out before the word is given for the fixing of the work.

In the meantime the office staff is busy submitting samples to the customer and making arrangements with the various suppliers for the dispatch of the materials concerned, of course after having made inquiries and accepting the most suitable estimates. Much forethought has to be given regarding the time required for the dispatch of glass, granite, and marble work, which should be so arranged as to be delivered on the site when wanted, and not before the work is ready, as it is impossible to store such bulky and heavy materials on the site until such times as they are required.



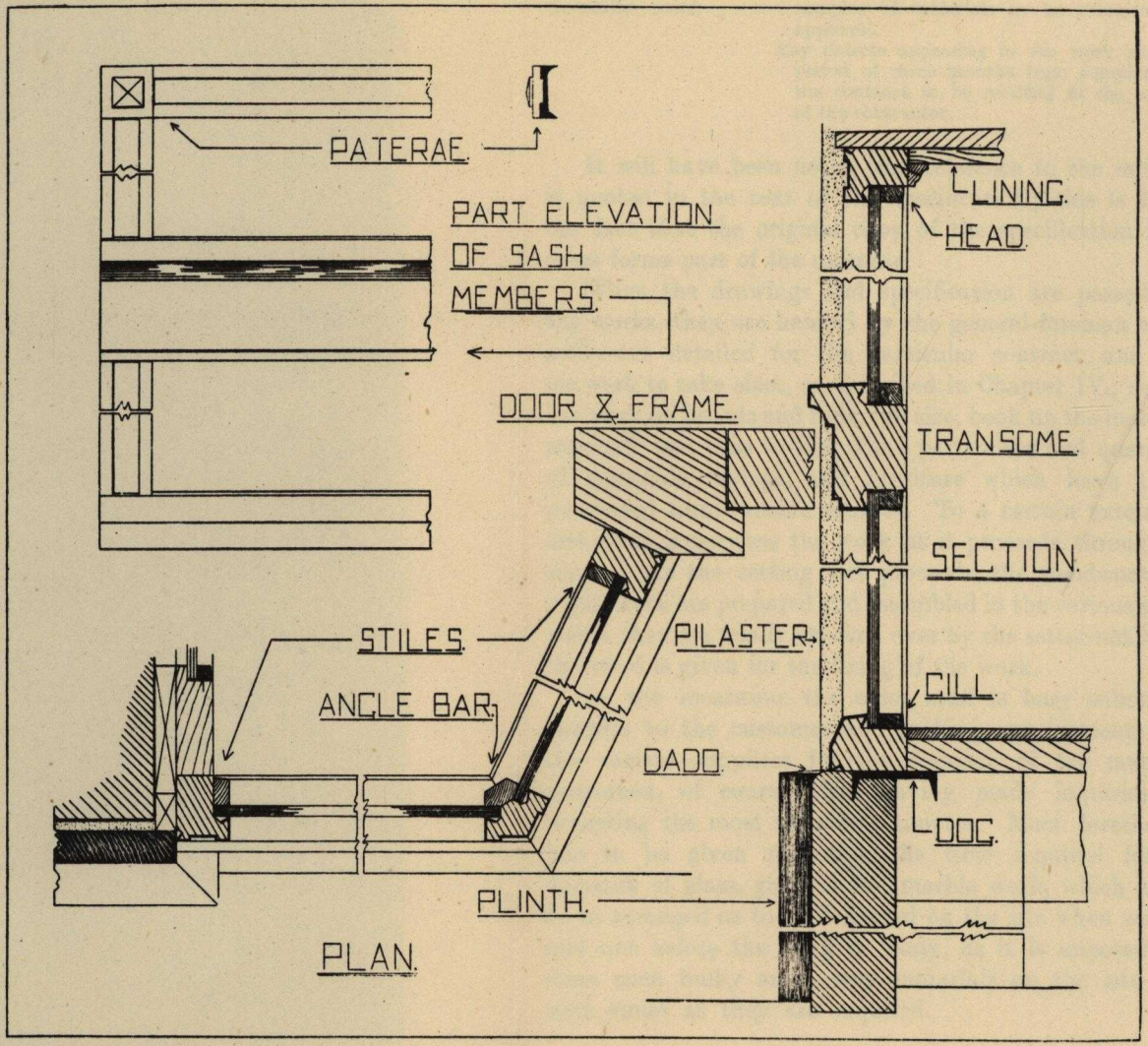


Plate IV.—Sash Details.

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After all these arrangements have been made and everything is finally settled, the work of fixing the shopfront is then proceeded with. If the site is a good distance from the works, and transportation by motor is not convenient, the work is packed up in crates and sent on a few days ahead of the workmen, labelled to await orders at the goods station, so that it only remains for the foreman in charge of the fixers, as the workmen are termed, to arrange delivery from the station to the site at a time convenient to their requirements.

With reference to the construction of the work and the method of fixing as applied to the example illustrated in Plate III., the following illustrated description will give a good idea of the practical side of this class of work.

Plate IV. shows the constructional details of the sashes and dados, which to a great extent is self-explanatory. The emerald pearl granite dados, which are 2 in. thick, are fixed in position as shown on the section, the lower part of base is laid a little below the pavement and lobby-entrance level and bedded in cement, the top edge being fixed to the 3-in. by 2-in. wood bearers by means of copper dogs, holes being drilled and filled with lead at intervals for this purpose before the granite leaves the mason's yard. The plan and section show the method of fixing the sash members and the glazing of same. All the members forming the sash frame in the stiles, sills, and heads are screwed in position by means of ordinary wood screws. At the intersection of the stiles and head, small bronze metal pateræ are fixed as shown on the elevation: these can be either soldered or screwed in position. Where the stiles abut, the piers flanking the front, deal grounds, or filling-in pieces as they are termed, are provided, the marble work of the

pilasters being arranged to cover same. This ensures the work being made weatherproof.

Plate V. shows the constructional details of the facia and sunblind box.

A is the cellulosed enamelled deal cornice, flashed with sheet lead, which is tucked into the brickwork at the back. This cornice is rebated to fit over the marble work, and is fixed to the brickwork by means of screws and wood plugs, the screws being deeply countersunk and filled in with wood filling.

B is the marble facia which is fixed to the brickwork and the cradling, C, between the flanges of the steel joist. The cradling consists of pieces of 4-in. by 2-in. deal, wedged into the joist at intervals of 18 in., steel straps being screwed to same, as shown in the section. These straps, or hangers as they are termed, are hooked or shaped for receiving the marble work. The inset shows two alternative methods of fixing the slabs, B being the facia and C the cradling and hangers in each case. Where the marble work backs on to the brick or stone work of the superstructure it is cemented, and in some cases screwed as well, the countersinkings being very deep and filled after screwing with coloured cement. The blindbox, X, is built up as shown, and is held in position by means of iron straps shaped and screwed to the faces of the cradling. D is the blind roller.

E is the matchboard casing at the back and to the underside of the box, this casing being finished at the ceiling level with a small moulding.

Section X-X shows the arrangement of the blind and box in relation to the pilasters and piers flanking the front. The blindbox is built up of deal, finished $\frac{7}{8}$ in. thick, the interior being lined at the bottom, sides, and back with sheet zinc, to prevent damp from getting at the

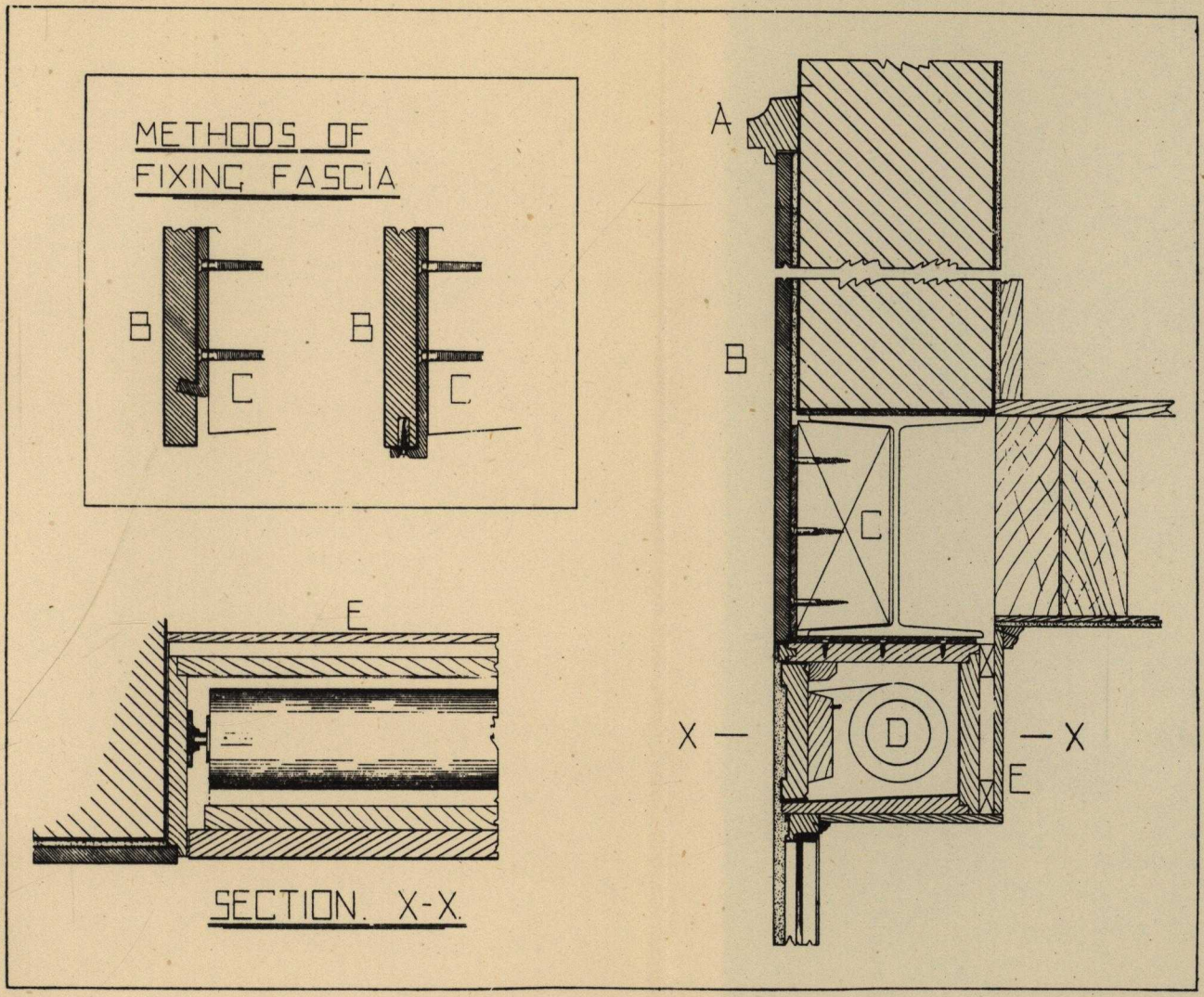

PLATE V.—Facia and Sunblind Details.

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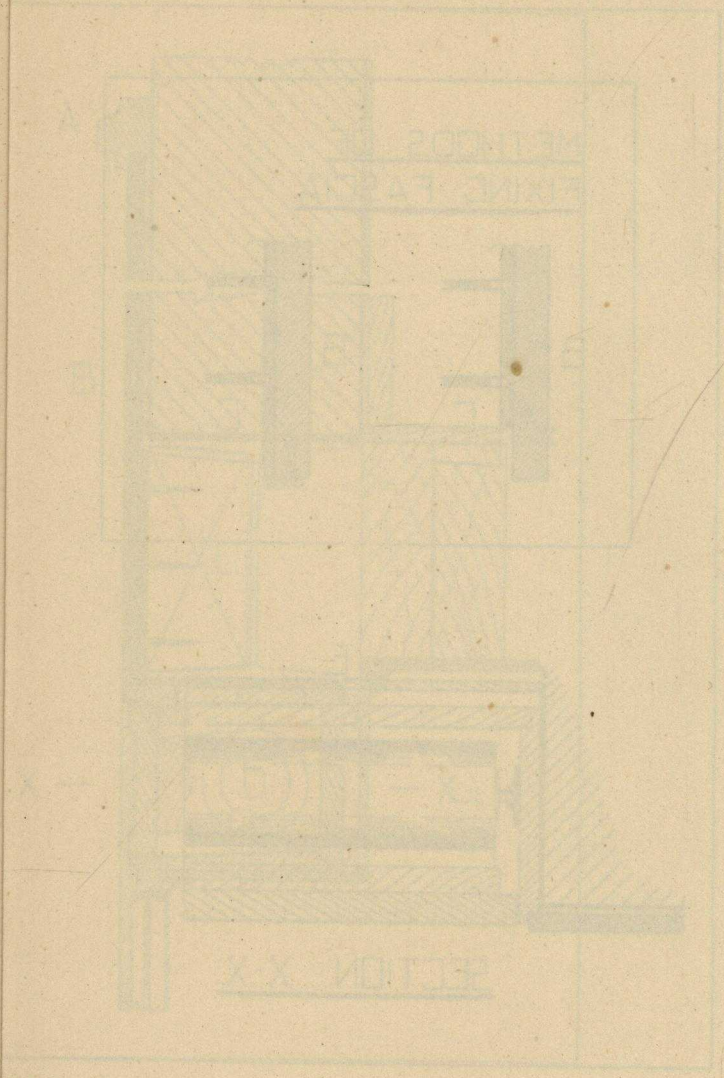

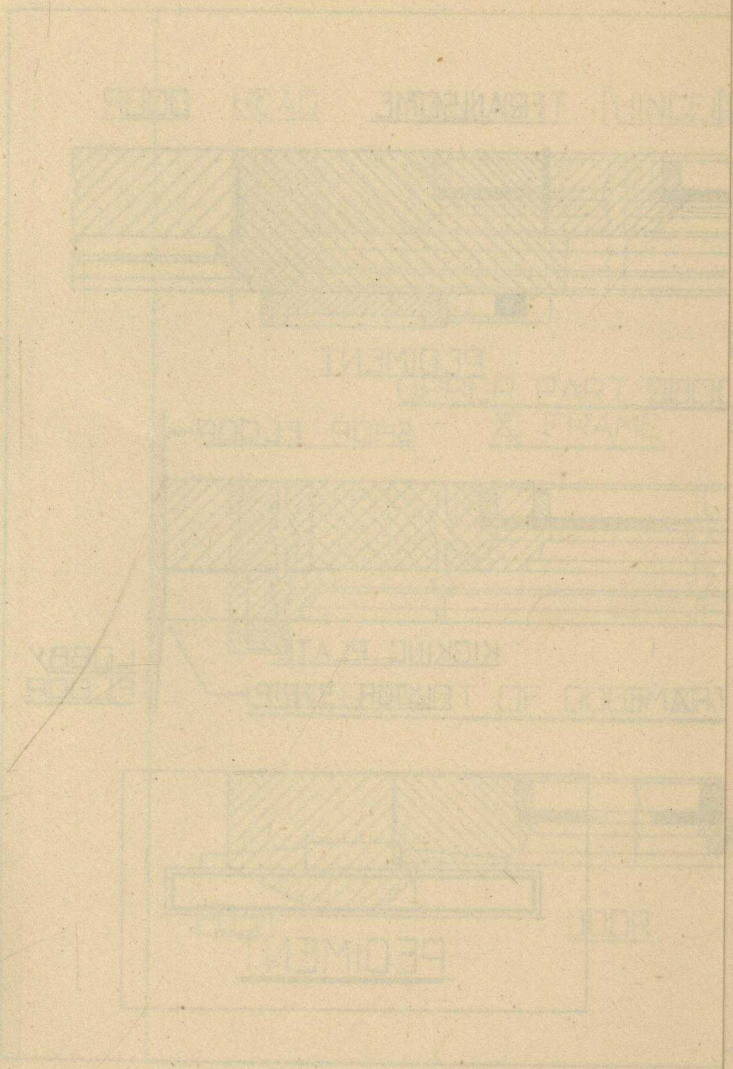

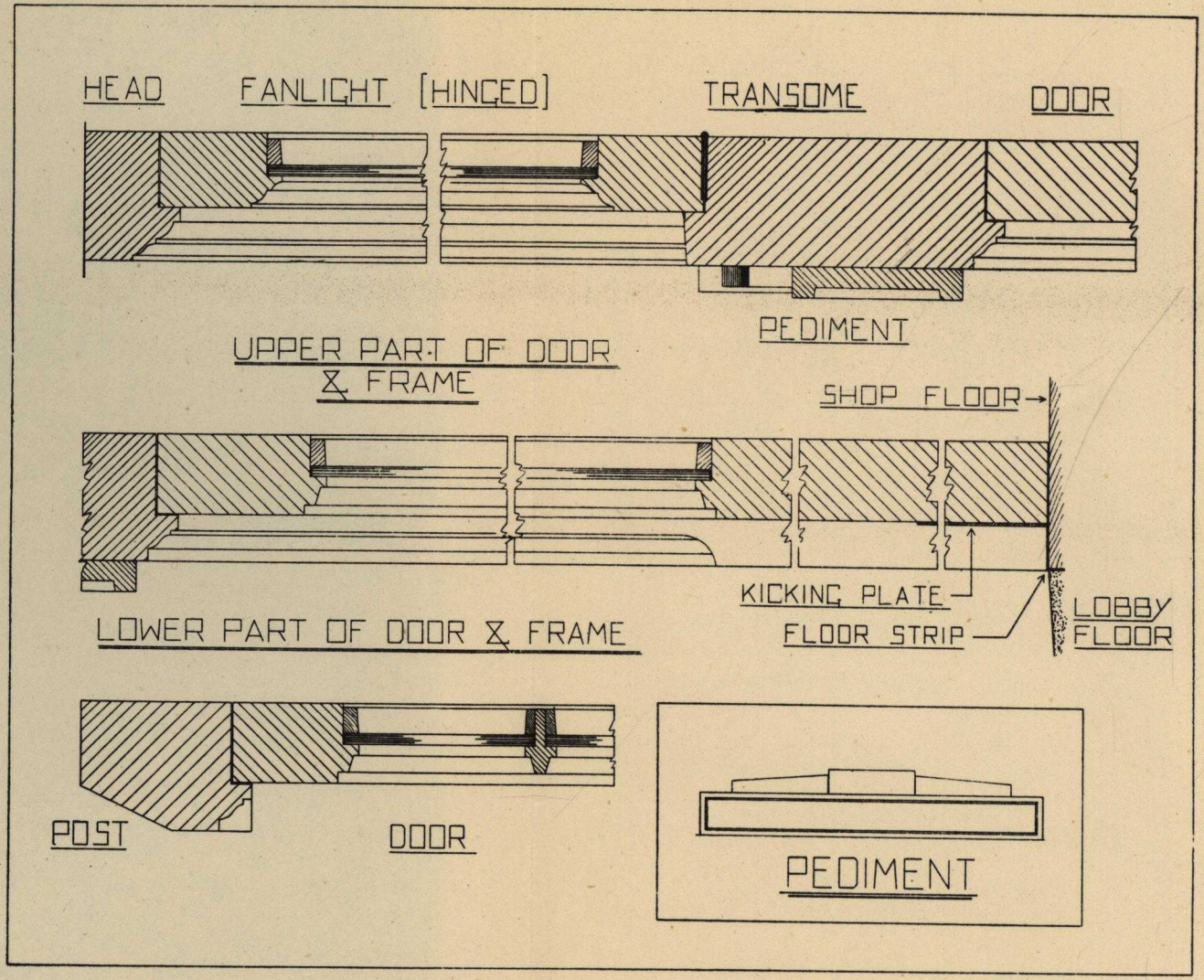

Plate VI.—Door and Frame Details.

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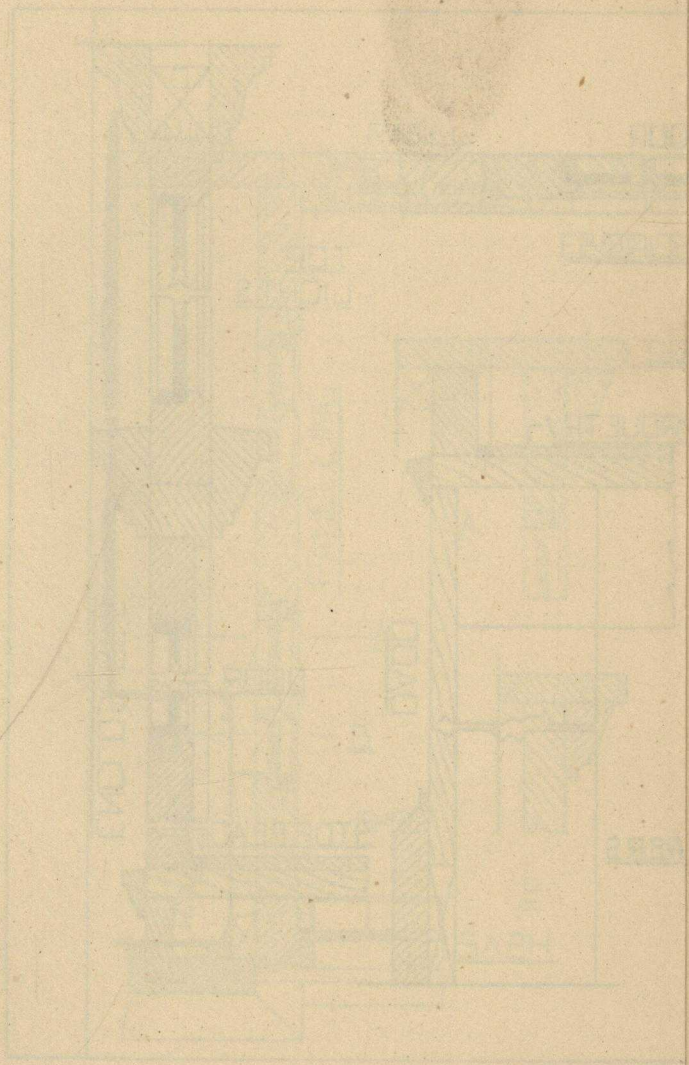

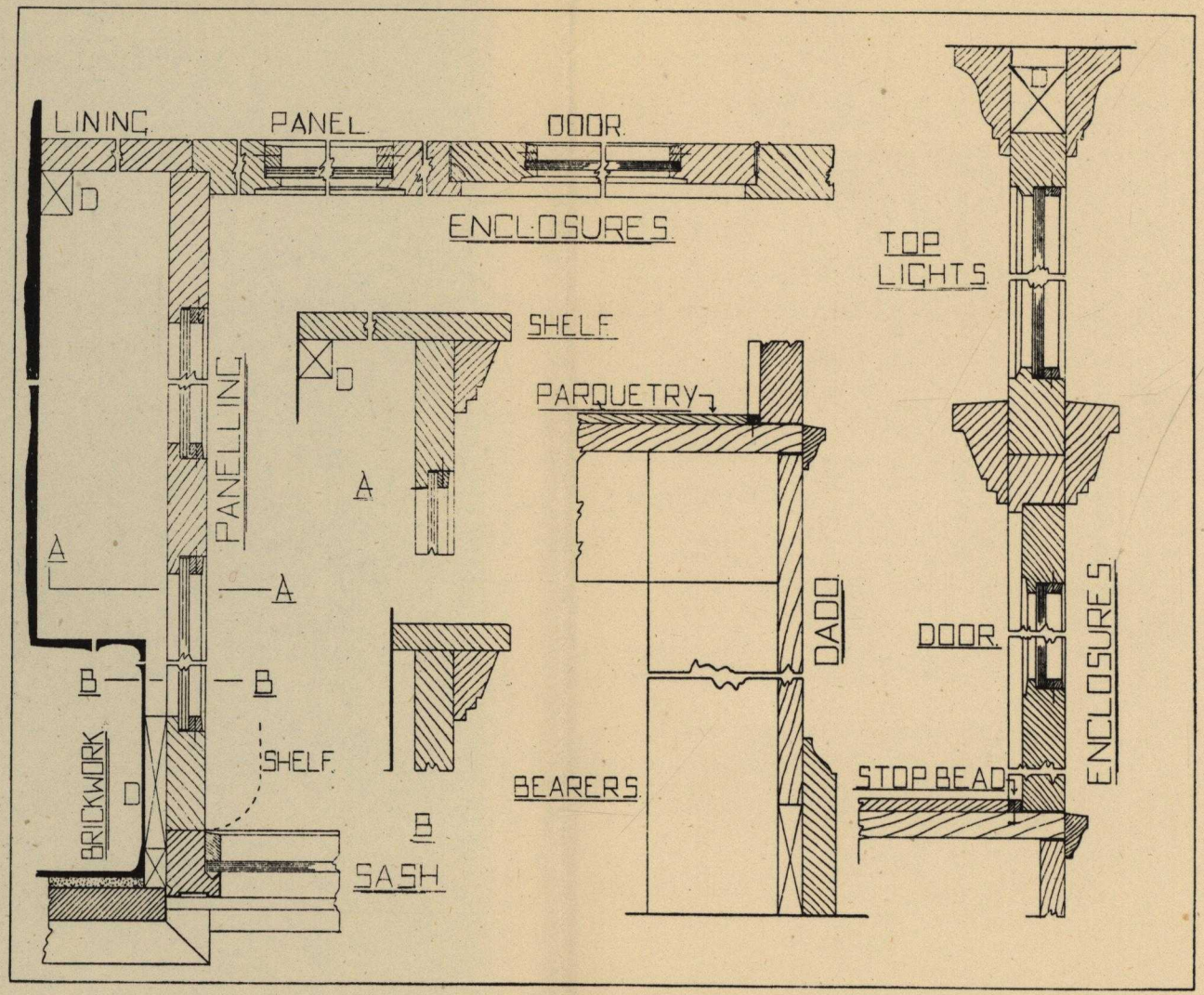

PLATE VII.—Enclosure Details.

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woodwork when the blind is rolled up in a wet condition.

Plate VI. shows the construction of the door, frame, and fanlight, with an enlarged elevation of the pediment over the door. The sizes of the various parts are as follows :—

Door frame : posts, 4 in. by 3 in. ; head, 3 in. by $2\frac{1}{2}$ in. ; transom, 7 in. by 3 in.—the pediment being built up of $\frac{3}{4}$-in. and $\frac{1}{2}$-in. stuff, planted on the face of the transom.

Fanlight : 3-in. by $1\frac{3}{4}$-in. framing, glazed and hinged to the top of the transom.

Door : Flush-panelled at the bottom, finished $1\frac{7}{8}$-in. thick, the marginal bars being halved into each other and mortised into the framing of the door ; these are moulded as shown, the sizes being $1\frac{1}{2}$ in. by $\frac{3}{4}$ in. The kicking plate is of 14 B.W.G. bronze metal, having top edge bevelled and screwed into position, with small, raised head, countersunk gun-metal screws.

Plate VII. shows the details of the enclosure framing, the various parts being lettered accordingly.

Sections A and B show the shelf treatment to the window-end panelling in relation to the piers and walls of the shopfront opening, and, as will be seen by the dotted line of the plan, the shelf is rounded off near the sash. The shelves are finished $\frac{5}{8}$ in. thick, and are $7\frac{1}{4}$ in. wide from the wall and 3 in. by the piers, the moulding under being $1\frac{3}{4}$ in. by 1 in. The panelling is framed up of $3\frac{1}{2}$-in. top and bottom rails, $2\frac{1}{2}$-in. and $3\frac{1}{2}$-in. stiles, and muntins 3 in., the panels being of $\frac{1}{4}$-in. oak-faced plywood. The finished thickness throughout being $\frac{7}{8}$ in.

The enclosures are built up of $1\frac{1}{4}$-in. framing, as shown on the plan and section, D being deal carcassing or fixing pieces. The glazed portions of the enclosures are constructed as separate units, and at their intersections with

the main framing is run a moulding on each side, this moulding being 2½ in. by 1¼ in., the upper part of the glazed portions being finished with mouldings of the same size.

The sizes of the members of the glazed framing are as follows: heads and stiles, 1½ in.; bottom rails, 2 in.; and mullions, ⅞ in. The framing of the enclosures is composed of members which are the same sizes as the wall panelling previously described. The glazed doors are very light, being framed up of 2-in. top rails, 3½-in. bottom rails, and 2-in. stiles.

The parquetry window bottom, which is ¼ in. thick and built of 2-in. squares, is finished against the doors with a hardwood fillet, forming a door-stop.

The matchboard dado is fixed to the bearers, and finished off at the base with a 4-in. by ¾-in. skirting mould, a small moulding being fixed at the junction of the dado boarding and the floorboards on which the parquetry is laid. It will be noted that as the face of the wall is recessed from the face of the pier, a plain oak lining is formed, this being carried up to the top of the panelling and enclosure framing, the enclosure moulding on the shop side being carried right through.

With the exception of the sizes being enumerated, the illustrations have been prepared with the idea of being self-explanatory.

On the completion of the work a survey is made by a technical expert for the purpose of seeing that the work has been done satisfactorily, and that the whole has been carried out in accordance with the drawings and specification on which the contract is based.

CHAPTER VII

SPECIAL CONSTRUCTION

UNDER this heading one or two items of construction which have not been dealt with in the previous chapter will be treated.

Fig. 2 shows the method of fixing ventilating panels in dados of shopfronts, although a rectangular type of vent is illustrated; the same principle is used in connection with small circular vents, the only difference being that only one bolt is necessary in this latter case.

These vents can be had in many various designs and sizes; the metal of which they are cast depends on the nature of the metal work employed in the front, which is any of the following: brass, bronze metal, stainless steel, or silveroid. Where the cost of a stainless steel or silveroid job has to be watched very closely, the vents used are usually of cast brass, silver, or chromium plated.

On referring to the section, it will be seen that these vents are cast with a rebated edge which fits snugly into the aperture in the dado, thus making not only a neat job but a weatherproof one. The backs of the vents are provided with copper gauze as shown at F, which is soldered to the back of the vent, E, this gauze backing being left in its original state if the vents are of brass or bronze, but plated if of stainless steel or silveroid. Where lugs are not provided, the back of the vent is drilled and tapped

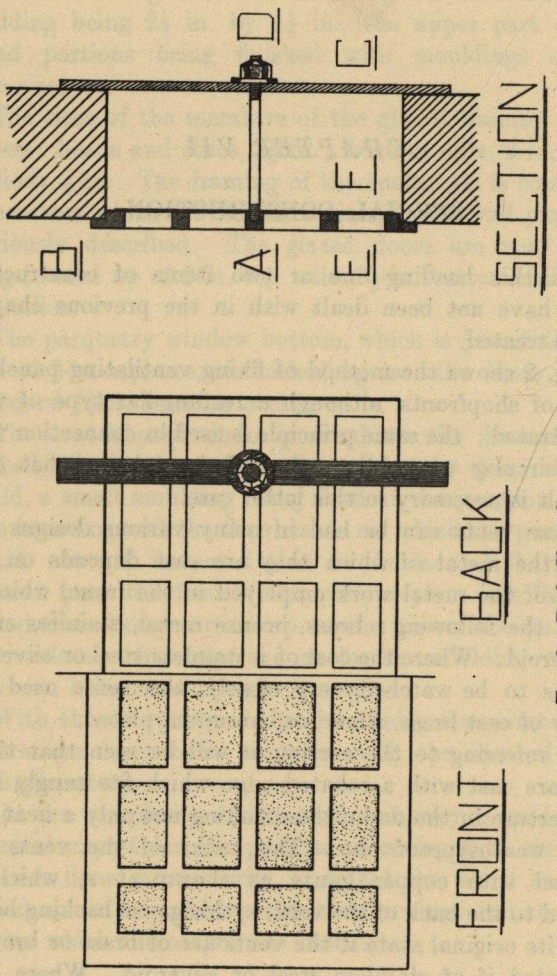


Fig. 2.—Dado Vent Construction and Fitting.

as shown at A for the reception of the bolt, D; this bolt, which is threaded at each end, is screwed into position before fixing. When the vent is fitted into the aperture in the dado, B, a steel strap, C, shown on back elevation and section, is fitted on to the end of the bolt, same being drilled with a hole, then the whole is screwed up tight by means of nuts and bolts. In the case of the type of vent illustrated, two sets of fixings are necessary, one set at each end of the vent.

One of the most modern tendencies to-day is that of frameless glazing, this method, or rather style of glazing, being used at the angles of the sashes, thus doing away with corner bars, with the idea of giving an uninterrupted view of the display area. Fig. 3 shows the main constructional details of this kind of glazing.

The sections A and B show the upper and lower edges of the plates, which are glazed in the usual manner; D and E show two alternative methods of the vertical joints of the plates, and as will be seen, it is imperative that the cutting and grinding of the edges of the plates should be carried out with great care, for the making of joints which are to be dust and weatherproof.

In many instances the edges of the two adjoining plates are treated with transparent cement, and it has been known in some cases that thin strips of baize have been glued to the edge of one of the plates, but this method is apt, if not very carefully watched, to become unsightly.

For reinforcing and securing the adjoining plates, small metal clips are bolted through the plates, as shown at D and E, at intervals of about 2 ft., these clips generally being of brass, shaped to the required angle, and chromium plated. These clips are generally $\frac{3}{8}$ to $\frac{1}{2}$ in. wide, each wing being about $\frac{3}{4}$ to 1 in. long and drilled to receive a $\frac{3}{16}$-in. bolt

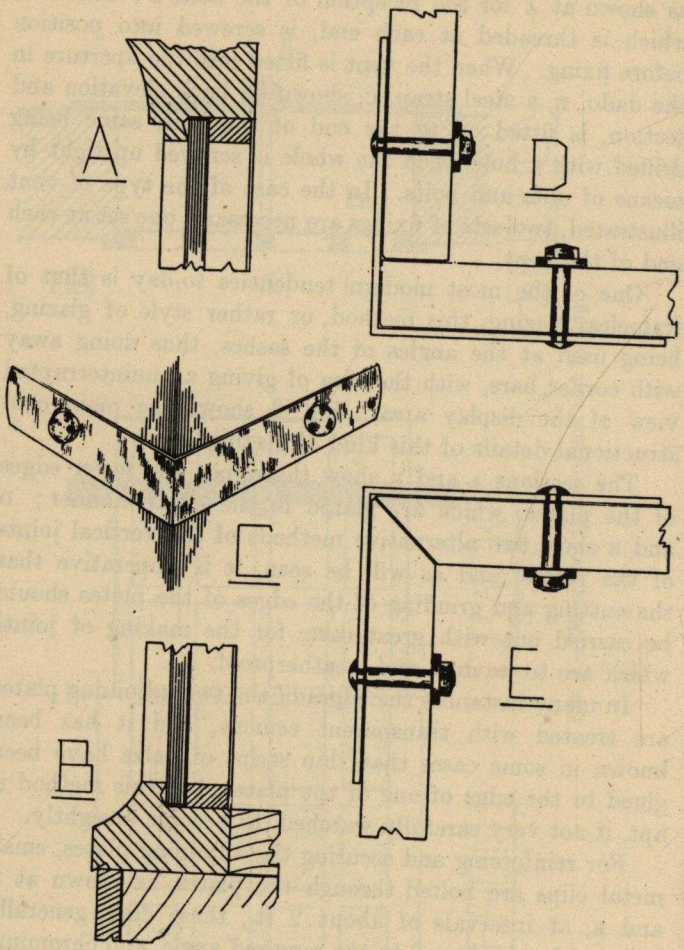
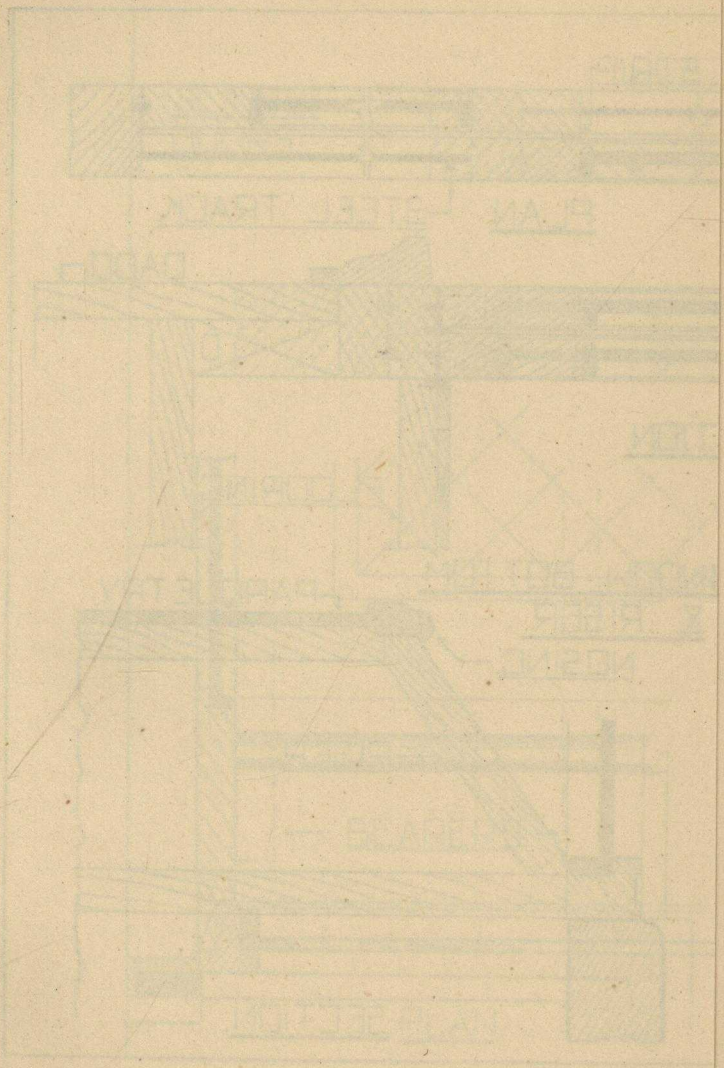


FIG. 3.—Frameless Glazing.



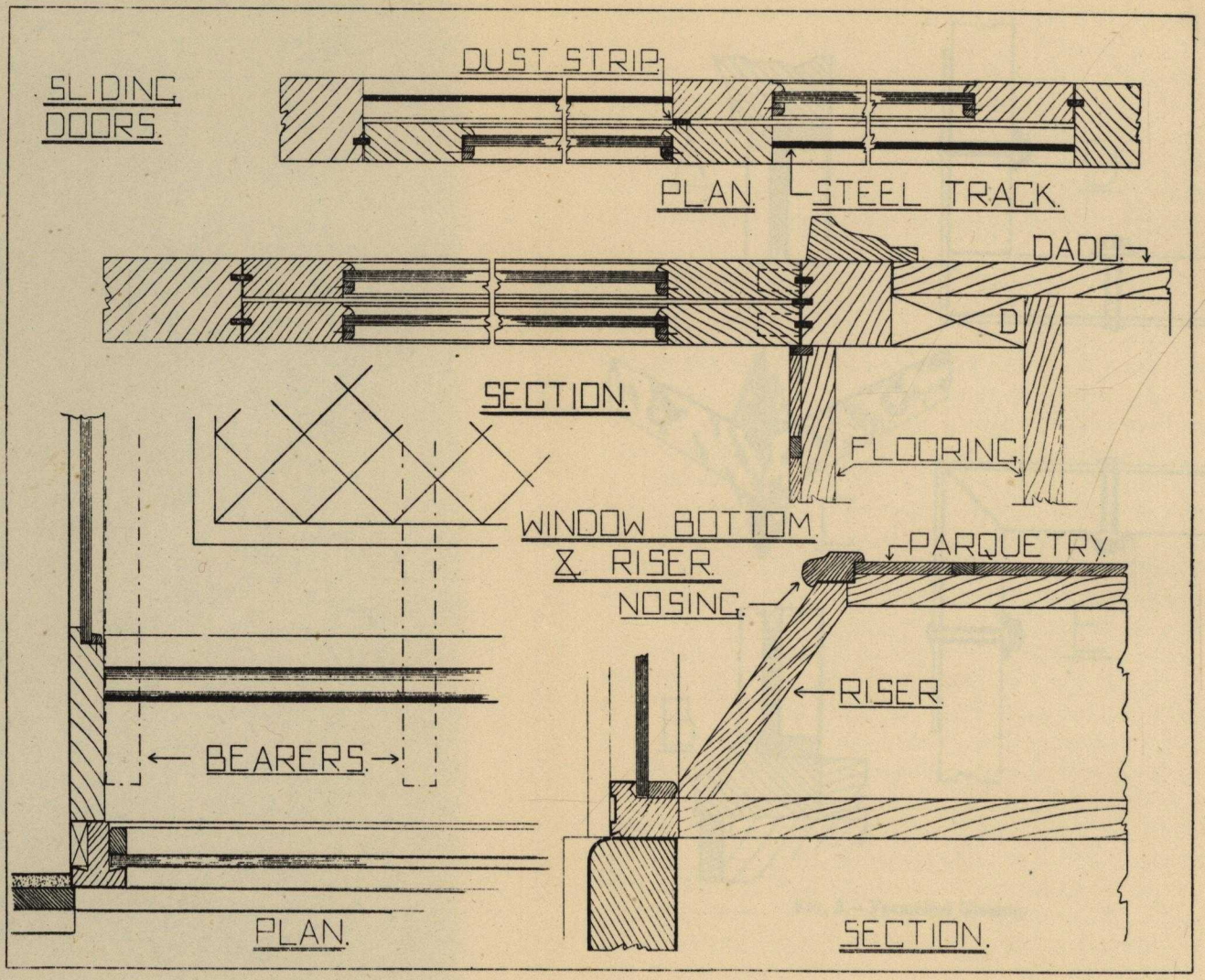


PLATE VIII.—Window Bottoms and Sliding Doors.

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with a raised head—these bolts being secured with nuts —the whole being plated to match the clips.

An enlarged sketch of one of these clips is shown at C. The edges of the plates are drilled in the required positions, with holes just sufficiently large enough to take the bolts.

With regard to special construction used in shopfront work generally which has not been treated, there are two items which constantly crop up, one being raised window bottoms with risers, used largely by confectioners, and the other sliding doors to the enclosures. These two items are illustrated in Plate VIII., in which each part concerned is enumerated. With reference to the raised window bottoms, the sections show the construction, which is very simple. At intervals of about 9 in. to 1 ft., $4\frac{1}{2}$-in. by $\frac{3}{4}$-in. deal bearers, shaped at the front end, are fixed to the flooring forming the window-bed, these bearers running the full depth of the windows ; on top of these bearers $\frac{3}{4}$-in. flooring is laid as shown, which forms a foundation for the parquetry window bottoms. After the parquetry is laid, the risers, which may be either flat as shown, or curved, are fitted in position and pinned to the ends of the bearers, or if required, may be left loose, so that they can be taken out for cleaning purposes, as any dust or dirt which may settle at the bottom of the risers can be swept into the spaces between the bearers. After the riser has been fixed in position, a nosing is fitted at the intersection of the parquetry and riser, this being secured with brass or bronze cups and screws to facilitate easy removal.

The section of the enclosure doors shows the finish of the raised bottom at the back of the window, D being a deal packing piece which receives the upper part of the window bottom dado.

The plan and section of the sliding doors illustrated in

the same plate are of the type usually employed, and in general opinion is the most satisfactory, as has been proved time and again.

The tops of the doors are grooved to correspond with grooves in the member above, hardwood strips the whole length of the opening being inserted; these strips fit tight into the framing above, and sufficiently loose into the doors to enable easy running—the strips are not pinned, screwed or glued, but simply wedged in. The method of fixing these strips is very simple: as each door is placed in position, the strip is pushed into the groove, the size being sufficient for pliability. The bottoms of the doors run on steel or brass track, as shown, bearing and running power being given by two Knoxall rollers mortised into the bottom rail of each door. These rollers can be purchased at any hardware dealers, and are constructed on the ball-bearing principle, which makes for easy and quiet running.

Between the bottom rails of each door, running the whole length of the opening, another hardwood strip is fixed, as shown on the section: this is mainly to prevent the doors running off the track and wedging, which would be the case if used roughly.

The end-door stiles are also grooved to make contact with hardwood strips, as shown on the plan: this being for the purpose of making the doors dustproof.

A hardwood strip, marked on the plan as "Dust Strip," is pinned to the back of the front meeting stile, and, as its name implies, is for the purpose of making the doors dust-proof when closed, besides giving a good finish to the work.

There are many types of door runners on the market to-day, but the type described has the advantage of not only being the most economical but the best from the point of view of wear and tear.

CHAPTER VIII

SUNBLINDS AND FITTINGS

THE provision of an outside sunblind is in a very great number of cases a necessity, the only exceptions being where a shop is situated in an arcade facing due north, or recessed well back from the face of the building. In arranging for this type of blind, several points require a great amount of consideration, these being as follows :—

The position of the sunblind box, whether above or below the facia.

The distance allowed by the local authorities for the throw-out of the blind when it is fully extended, this being in the majority of cases governed by the width of the pavement in front of the shop concerned.

The height of the blind rail from the level of the pavement when the blind is extended.

The position of the blindbox is to a great extent a matter of choice governed by the design, but in all cases it should always be arranged so as to form part of the shopfront itself, and not appear as an extra, added on as an afterthought. The only instance where there can be no choice in this respect is in the case of a very low front facing on a very narrow pavement; it is then essential that the blindbox should be fixed above the facia, so that the material of the blind can be of sufficient width when the blind is extended to enable the maximum amount of shade being

given to protect the shop window from the glare of the sun.

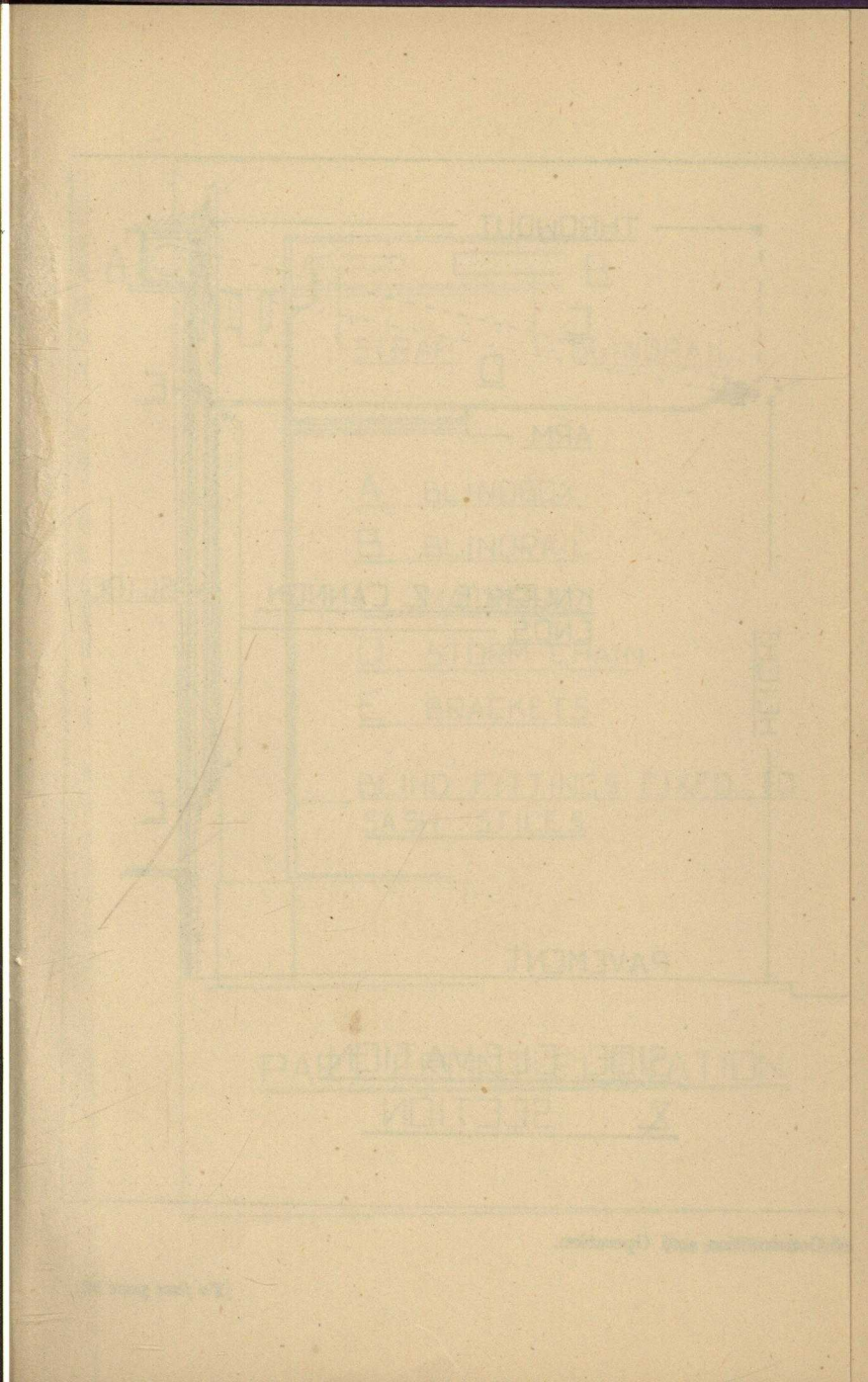
Sunblinds can be made of quite ordinary construction up to about 20 ft. wide. When the width exceeds this, it is desirable that the blind should be formed into two or more sections. The spring rollers to which the blind material is attached are made in diameters from 3½ to 5 in., the diameter of the roller being determined by the width of the blind, which is obviously plain that the greater the width the stronger the roller.

There is now a great selection of blind-cloths to choose from, but usually, where the choice lies with the shop-fitter, 21-oz. white duck sailcloth is used, and it has been proved time and again that this kind of material is by far the most satisfactory.

The boxes for housing the roller and blind are generally made of deal, and any exposed edges and faces of the same kind of wood used in the facework of the front concerned. The back and bottom of the box is lined with sheet zinc to prevent moisture working into the woodwork when the blind is rolled up in a wet condition.

The roller is fixed in position by means of small iron or steel plates screwed to the ends of the box, an illustration of which appears in the blind details shown in Plate v., in Chapter VI.

The rail to the front of the box can be of wood or drawn metal, which varies according to the design and construction of the front, the cloth being attached to same by means of a deal lath screwed to the back of the rail. To prevent the rail from being pulled into the box, stop-blocks of deal are screwed to the underside of the top member of the box, a detail of which appears in the section shown in Plate v.



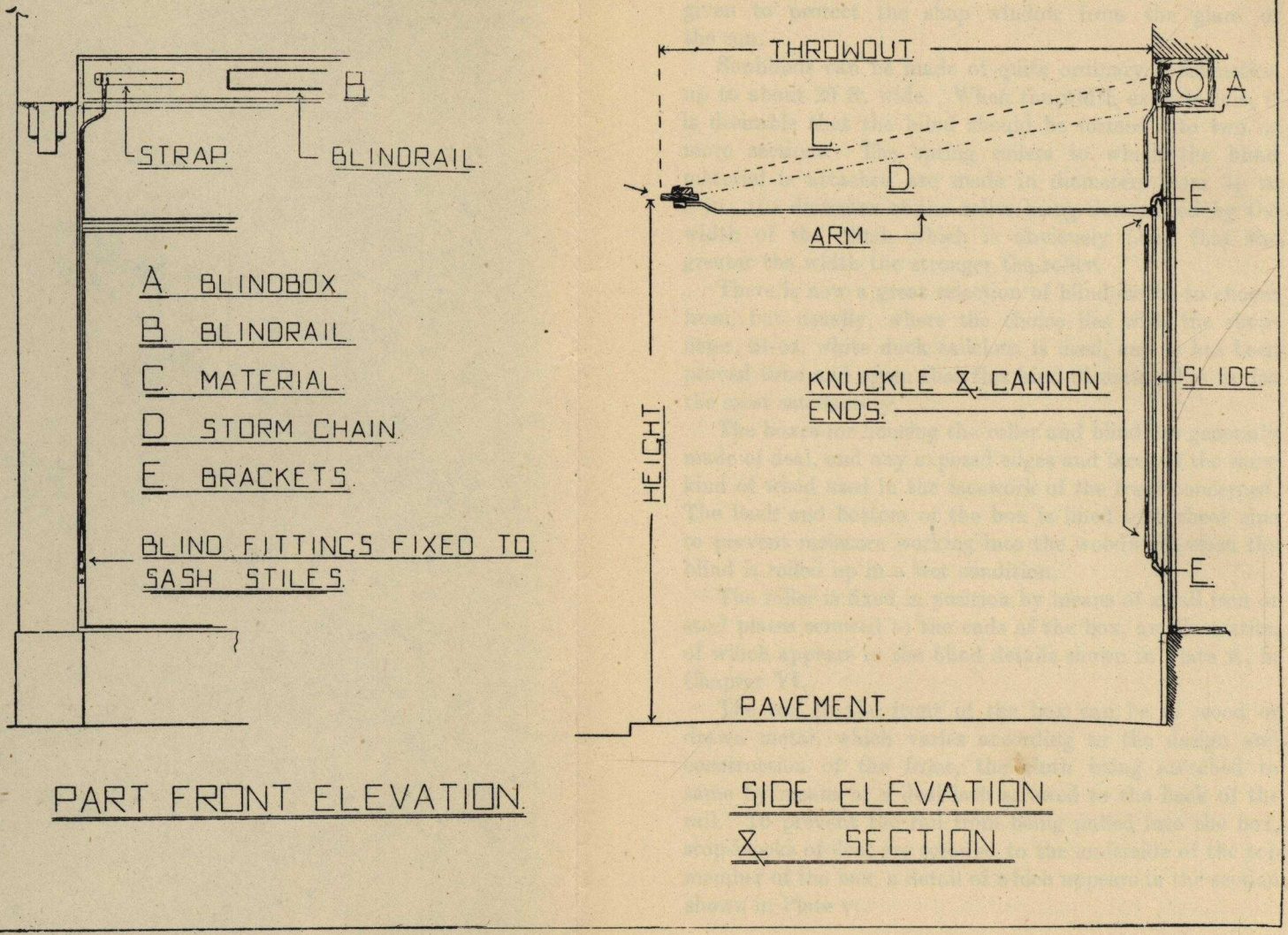


Plate IX.—Sunblind Construction and Operation.

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In addition to the spring roller, the most important parts of the blind to be considered are the irons, or arms and slides, which regulate the throw-out. Great care should be taken when plotting out the arms and slides, and until one has designed several sets it is a rather difficult job, as the arms have to slide and hinge equally, so that the blind, when extended, is quite level and the throw-out correct.

Plate IX. shows the construction of the average type of sunblind used to-day, and it will be seen how important a factor the arms and slides are.

The sizes of the blind irons should not be too heavy, but at the same time should be sufficiently strong enough to withstand continuous wear and resistance to wind pressure. It is the usual practice for the slides to be of $\frac{3}{4}$-in. diameter steel, and the arms of $\frac{7}{8}$-in. diameter steel, bright mild being the best kind of steel. The steelwork should be treated to match the general scheme of the front concerned.

If bronze metal is the predominant material in the work, the arms and slides should be kupronized—that is, plated with copper—the thickness of the plating being specified not to exceed $\frac{1}{64}$ in. in thickness, this thickness of the plating being necessary to obviate any undue resistance which may cause binding or stiffness when the blind is being operated, and thus causing the plating to be stripped off.

In the case of stainless-steel or white-metal fronts, the blind irons are plated accordingly, the thickness of plating being specified in the same manner as the copper plating. The slides are fixed either to the sash stiles or the pilasters of the front by means of brackets, as shown at D in Fig. 4, one pair of these brackets being necessary to each slide. These brackets are of cast metal, and can be had in any

of the following mediums: brass, bronze, stainless steel, or iron. The arms are connected to the slides by means of knuckles and cannon ends, which form a sliding hinge or

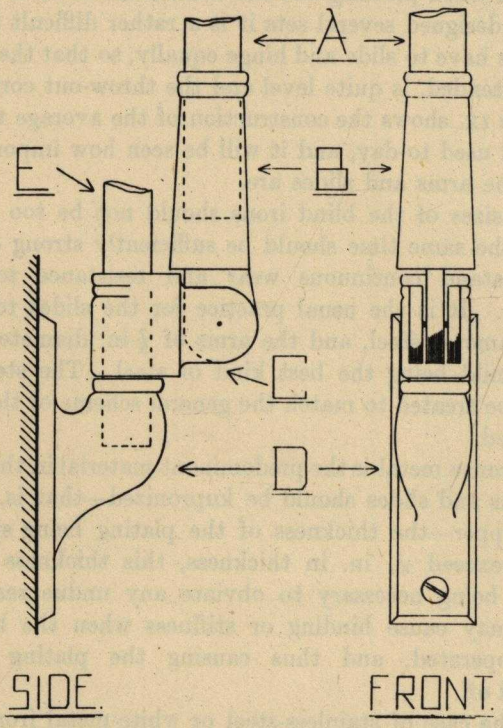

FIG. 4.—Sunblind Brackets and Fittings.

connection between the arms and slides. The lower end of the arm in each case is fitted into the cannon end, B, in Fig. 4, which is in turn connected to the knuckle, C, in Fig. 4, the bottom part of the cannon end being fixed between

two leaves projecting from the face of the knuckle by means of steel pins riveted in position, which acts as an axle for the knuckle to move on as the arm slides upwards. On referring to Plate IX. and Fig. 4, it will be seen that the fittings described are without doubt the most important parts of the sunblind, as it is these parts which govern the

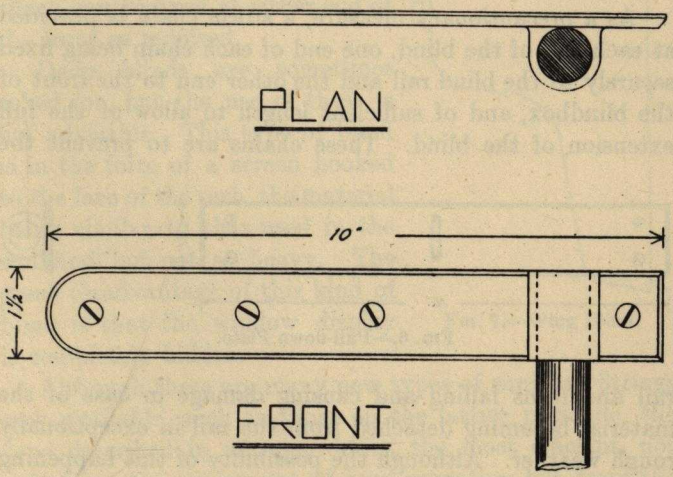

FIG. 5.—Sunblind Strap.

operation of the blind itself. Both the cannon ends and knuckles are of cast metal of the same material as the brackets.

The upper extremities of the blind arms are fixed to the blind rail by means of straps, a typical strap being shown in Fig. 5; these straps are carried out in the same material and finish as the other fittings, and are screwed to the rail, the part receiving the blind arm projecting from the face of the plate itself.

Fig. 6 shows the type of plate employed for enabling the blind to be operated with ease, this plate being screwed to the centre of the rail and having a ring projecting for the engagement of the hook of the pole used for the purpose of operating the blind. This plate is of the same material and finish as the other fittings, and in many cases bears the name of the shopfitter concerned.

As a precautionary measure, a storm chain is provided at each end of the blind, one end of each chain being fixed securely to the blind rail and the other end to the front of the blindbox, and of sufficient length to allow of the full extension of the blind. These chains are to prevent the

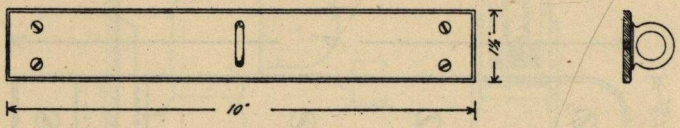

FIG. 6.—Pull-down Plate.

rail and irons falling and causing damage in case of the material becoming detached from the rail in exceptionally rough weather. Although the possibility of this happening is rather remote, it is best to be on the safe side. These chains are of steel, and treated to match the finish of the arms and fittings.

In cases where the sun is likely to strike the shopfront at an angle, provision is made for an auxiliary blind, known as a wing blind, as shown in Fig. 7.

These wing blinds consist of material of the same nature as the main sunblind, and are fixed to a wood rail hooked at its extremities as shown at A, the hooks, B, engaging into screw eyes fixed at the end of the blind rail and blindbox when the sunblind is extended—the material having eyelets

as shown at C for attaching to hooks screwed into the sash, stile, or pilaster jamb to hold the material in position. The material is shaped as shown, to give protection to the window without causing obstruction to pedestrians. In the majority of cases it is only necessary to provide one wing blind, which can be fixed at either end of the front as required.

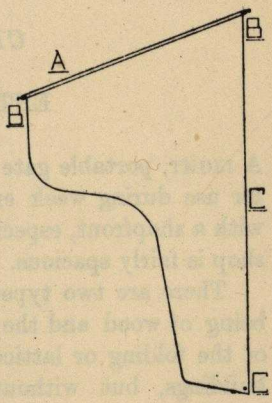

FIG. 7.—Wing Blind.

Dado blinds are sometimes asked for, but the use of these is not advisable. This type of blind is in the form of a screen hooked to the face of the sash, the material being similar to that used in the sunblind but not so heavy. The great disadvantage of this kind of blind is that the window display is completely hidden.

Although there are many new types of sunblind fittings now available, such as those on the lattice principle, the type described is, without doubt, the most efficient, not only from the view-point of easy operation but from the point of design and adaptability.

CHAPTER IX

ENTRANCE GATES

A LIGHT, portable gate for erecting after closing hours and for use during week ends is often included in connection with a shopfront, especially when the lobby entrance to the shop is fairly spacious.

There are two types of gates used in this respect, one being of wood and the other of metal; those of metal are of the folding or lattice type, such as are used for public buildings, but without doubt the wood type are far superior, not only being light and easy for handling by shop assistants, but from the point of view of design and appearance. Collapsible metal gates, although suitable for many purposes, do not lend themselves to shopfront work, and constantly require renovation, and being, as they are, manufactured by firms specialising in this class of work, will not be treated in this work.

Plate X. shows two suitable designs for gates together with the main constructional details, which are very simple and straightforward.

The usual woods employed in the making of these gates are oak, teak, mahogany, canary wood, and deal, french polished or painted, and stained to match the exposed woodwork of the front concerned.

When there is no other entrance to the premises other than through the lobby, provision is made for the fixing

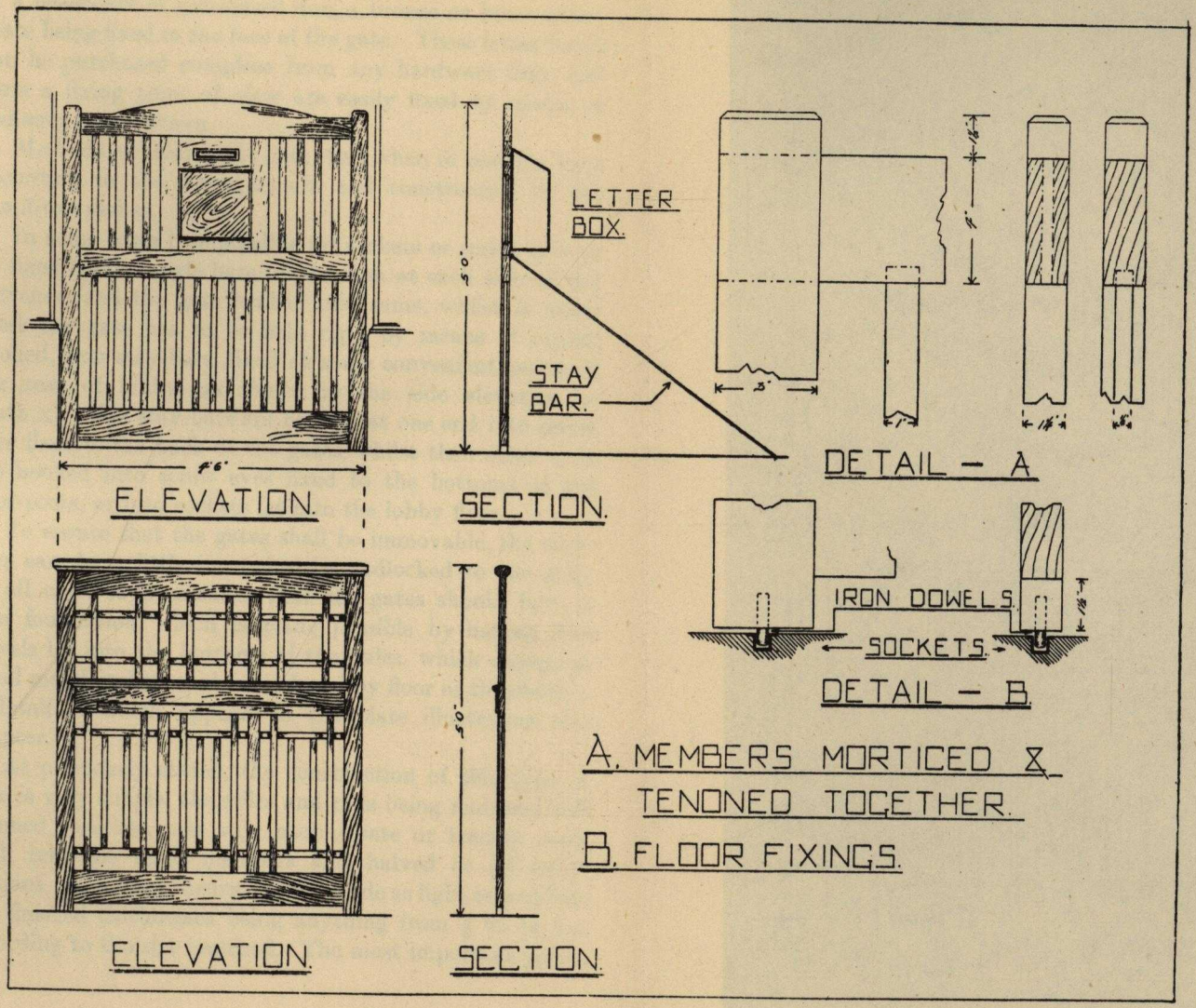

PLATE X.—Shopfront Entrance Gates.

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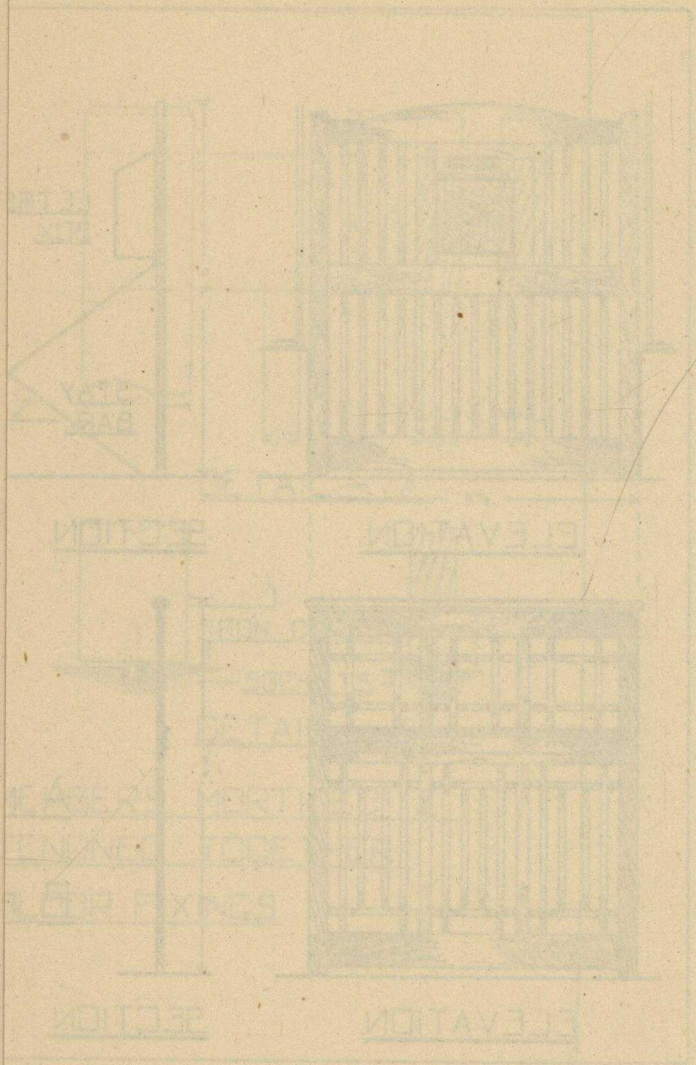

of a letter-box of galvanised iron, a bronze or brass letter-plate being fixed to the face of the gate. These letter-boxes can be purchased complete from any hardware firm, and from a fixing point of view are easily fixed by means of ordinary wood screws.

Methods of holding the gate rigid when in position vary according to the arrangements and construction of the shopfront sashes.

In some cases it is possible for sockets or screw eyes to be fixed to the angle bars of the sash at each side of the entrance, and the gate hooked into same, whilst in other cases the gate has to be held rigid by means of round, hooked, iron stay-bars, fixed at some convenient point at the rear of lobby, as shown in the side elevation in Plate x. The stay-bars are hooked at one end into screw eyes fixed to the back of the gates, whilst their other ends are hooked into screw eyes fixed to the bottoms of the door-posts, or into sockets let into the lobby floor.

To ensure that the gates shall be immovable, the stay-bars can, by a little ingenuity, be padlocked to the gate. In all cases it is essential that the gates should have a firm foundation, which is made possible by having iron dowels let into the bottoms of the stiles, which engage in small metal sockets sunk into the lobby floor or threshold—a detail of which appears in the plate illustrating this chapter.

As previously stated, the construction of this type of gate is very simple, the stiles and rails being mortised and tenoned together, and any intermediate or tracery work sunk into the main members and halved at all intersections. The gates themselves are made as light as possible, the finished thicknesses being anything from $\frac{7}{8}$ to $1\frac{1}{4}$ in., according to the size required. The most important points

to consider in the designing of a shopfront entrance gate is the total height and the height of the underside of the bottom rail from the floor or step. The total height should be sufficient to prevent anyone from being able to climb over easily, and the bottom rail should be as near the floor level as possible to prevent dogs from gaining access to the lobby entrance. The height usually employed is 5 ft. overall, and that of the bottom rail never more than 3 in.

In some cases small wicket gates are incorporated in the design of shopfront gates, especially in the case of lockup shops where there is no other means of ingress other than through the shop, and in such cases it is always desirable for the wicket to form part of the actual design. Where iron standards or stay-bars are employed, these should be of round section, and should not exceed $\frac{3}{4}$ in. diameter, as the question of portability is the main item to be considered.

CHAPTER X

FACIAS

No shopfront is complete without a facia, which should be so designed as to form part of the general scheme. Although the tendency to-day is for the facia to be in the same material as the pilasters, thus forming a surround or frame for the sashes, it is not really necessary to confine one's self to this style, but it is essential that the facia is designed and constructed to be in keeping with the remainder of the work irrespective of the materials used in its construction.

By far the simplest form of facia is that of a plain wood surface painted and written, or instead of the writing, wood letters and numerals fixed to the face. This class of facia is confined to very cheap jobs, which abound in the back streets. The usual wood used in this class of facia is canary wood, which is less liable to warping and twisting in exposed positions than many other varieties. Another simple form of facia which is used in good-class work is that of metal, bronze, copper, silveroid, or stainless steel, according to the nature of the shopfront work. This type can be of planished metal plates fixed to a backboard of deal or canary wood, or can be of metal-faced plywood, such as "Plymax," fixed to the cradling, and fitted with metal letters screwed from behind before fixing in position. This type of facia, with enamelled

bronze or stainless-steel letters, is very effective, and as long as it is wiped over occasionally, never deteriorates.

In shopfronts where woodwork is the prevailing feature, an incised facia is by far the best type, and can be incorporated in any scheme without fear of spoiling the general effects. Fig. 8 shows, by means of a section, the constructional details of this class of facia. The frame, A, is built up of hardwood corresponding with that used in the shopfront work, the bottom edge of the frame being moulded and throated. The finished size of the stuff comprising the frame is $2\frac{1}{2}$ in. wide by $1\frac{1}{4}$ in. deep. Inside this frame at the back is formed another frame of $\frac{7}{8}$-in. by $\frac{3}{4}$-in. deal, left in the white, this frame being screwed into the members of the facia frame. The incised backboard, C, which is always of canary wood, is then fixed into the frame against the deal framing, D; $\frac{1}{2}$-in. by $\frac{3}{16}$-in. hardwood beads are then pinned inside the frame against the backboard, so as to form a space between the glass plate, B, and the backboard. The glass plate, B, is then glazed into the frame with hardwood beads as shown.

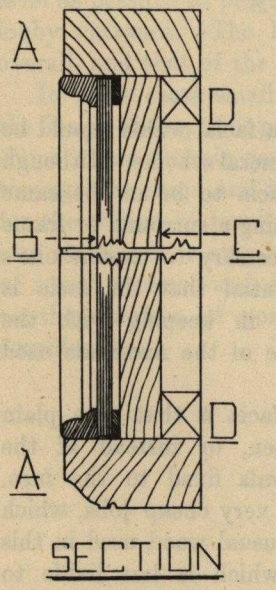

FIG. 8.—Incised Facia (Section).

The lettering to the facia is carried out on both the backboard and the glass plate, and the result is the combination of the two operations.

The backboard is incised with the required lettering,

this incising being carving; the letters are carved in the wood, this carving being V in section, and treated with white enamel, gold, or silver leaf, according to requirements. The glass plate is decorated on the back side, blank spaces being left for the incised work to show through. The spaces left for the lettering to show through are bordered with gold leaf and outlined in black, the remainder of the plate being enamelled to the colour selected, with generally a gold border line round the whole of the plate. The effect given by this type of facia is very neat and attractive. A good example of this type of facia can be seen at any branch of the Maypole Dairy Company. Fig. 9 shows the method adopted for fixing wood letters to glass facias, glass in this sense being very broad, so as to include opal, vitrolite, marmorite, and plate glass. Holes are drilled in the glass corresponding with the positions of the letters to be fixed.

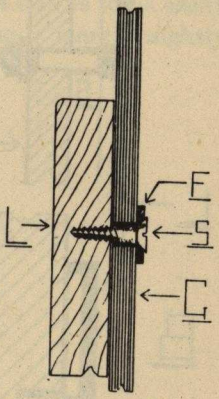

FIG. 9.—Glass Facia (Section).

The letters, L, are held in position and screwed from the back of the plate by means of ordinary wood screws, S, and to prevent fracturing of the plate, fibre or cork washers, F, are used. In the case of glass, shown on the section as G, this can be decorated at the back. Granite, marble, and stone facias with metal letters are now used more than any other type, and the methods of fixing the letters is not so easy and straightforward as in the instances already quoted.

Fig. 10 shows the methods adopted.

In marble work, the thickness of which is generally

¾ in., the letters are bolted from behind the slabs before being fixed in position, as in A. The letter L has threaded lugs into which the double-threaded bolt, N, is screwed, which is held rigid by means of a nut and washer at the back of the slab, M.

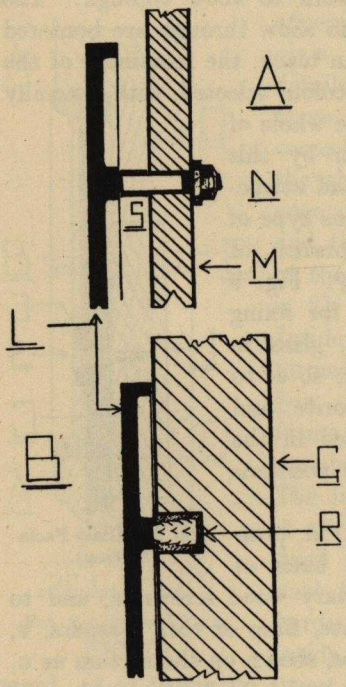

Fig. 10.—Stone Facia (Section).

When it is desired for the letters to stand out, spacing washers, S, generally of copper or bronze, are provided. In granite and stonework, which is of a thickness too great for bolting through, as shown in B, rag bolts, screwed into the lugs of the letter L, are resorted to. The granite or stonework, G, has holes made sufficiently large enough for the rag bolt, R, which is held in position by means of cement grouting, the grouting being filled in and the rag bolt forced home—of course, after having been screwed into the letter or numeral, as the case may be. All bronze or steel letters are cast with necessary lugs, which are threaded for either rag or ordinary bolts. In either of the two above examples the use of spacing washers is optional.

Metal letters for facias can be obtained in all manner of types and styles, and can be plain-faced or filled with

enamel of various shades and colours, and in any case the range of styles now on the market is sufficient to give the designer full scope to his artistic abilities. When letters are supplied for any specific work, the manufacturers always provide a full-sized setting-out, with lug positions marked for the purpose of preparing the facia medium for the reception of the letters. The main thing to be considered with regard to facias is to set out and arrange the lettering in such a manner and of such a size as to be easily seen without being too large, as nothing is more unsightly than a heavy-lettered facia.

CHAPTER XI

VENTILATION

One of the little things that matter in shopfront construction is the ventilation of the shop windows, and the value of efficient ventilation can never be overestimated, not only from a health point of view, but also in regard to the effect it has on certain types of goods displayed. Methods of ventilating shop windows in this country are, generally speaking, rather crude, and in a great many instances where ventilating devices are installed, proper use is never made of them.

The moderate climate of this country has caused the question of ventilation to be studied with less interest than abroad, especially in America, where air-conditioning is regarded as a very vital subject.

No doubt one of the chief troubles we have to contend with is condensation, which causes misty or steamy window plates. As we all know, this is due to the difference in temperature of the inside and outside air. Many are the various forms of treatment suggested and produced from time to time to eliminate this trouble, but without success.

The one and only method which has met with any degree of success is that of keeping the air in constant and uniform circulation by means of proper ventilation, so arranged as to admit and expel the air without causing any draughts. Frequently in the winter time, or during cold

spells, one comes across a shop window which is only steamed in patches, despite the fact that there appears to be adequate ventilation, simply because the designer or contractor, as the case may be, cannot differentiate between ventilation and draught.

The basic factor governing ventilation is the constant flow of air of an even temperature, and its maintenance is based on the fact that warm air is lighter than cold air : warm air rises and cold air descends.

Warm air, left to itself and given an opportunity to circulate freely, will flow through the shop window seeking the highest levels, and in doing so will force the cooler air downwards, or make room for it by escaping through a vent placed at a high level.

When cold air enters an enclosed area and gets warm, it rises, and if proper ventilation is provided at the highest levels, it is forced out by the cooler air constantly entering from a lower level and getting warm, thus ensuring a constant circulation.

In the warmer seasons of the year the humidity of the air in an enclosed window space is generally approximately the same as that outside ; but in the colder weather there is a much greater discrepancy, due to the difference in the two temperatures.

The percentage of saturation of the cold air brought into an enclosed area by natural methods is greatly reduced, and it is unable to absorb the moisture given off by the merchandise in the window or case, especially if they are of a textile nature.

It will therefore be easily seen that by keeping the air in constant circulation it is possible to keep the goods on show in a much better condition than otherwise would be the case.

As far as ventilating equipment is concerned, each type of shop has its own individual problems.

Plate XI. shows the most effective means of properly ventilating a shop window, and to a great extent is self-explanatory.

A ventilating panel is inserted in the dado of the front, through which the cool outside air passes. It then enters the interior of the window through another ventilating panel fixed in the window bottom near the sash plate. After entering the window space the air circulates, becoming warmer, owing to the difference in temperature inside the window as compared with that outside. The air as it gets warmer rises to the ceiling or soffit, and is then forced through another ventilator inserted at the sash head into the open again, thus making room for more cool air from the lower level to take its place, and so this goes on indefinitely.

To prevent any dust or dirt from entering through the dado and sash-head ventilators, they are all backed with very fine mesh gauze, generally copper, which is treated to match the metal of which the vent panels concerned are made. With regard to the ventilators themselves, these are of various sizes and designs, and are usually executed in the same material as the sash members or any exposed metal work used in the construction of the fronts.

Those used in the dados are fixed in position from behind with bolts and straps, as shown in Fig. 2 in Chapter VII. The window-bottom vents are generally of plain design, slotted, usually 6 to 9 in. in length by 3 in. in width, and are rebated into the window bottoms so as to finish flush, and situated as closely as possible to the sash plate.

The sash-head ventilator is, where adopted, usually embodied in the head rail itself, the vents being pierced

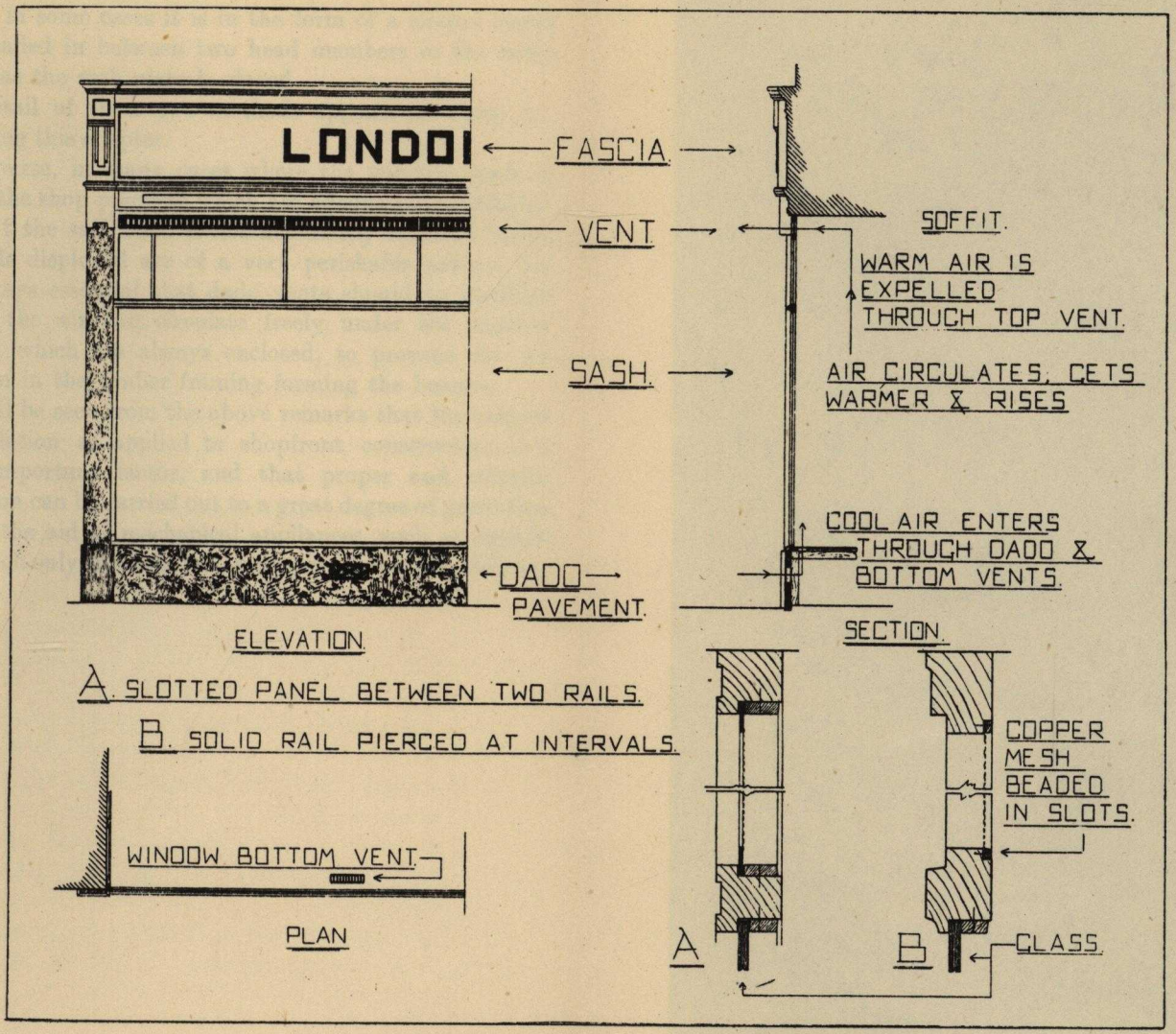

Plate XI.—Shop Window Ventilation.

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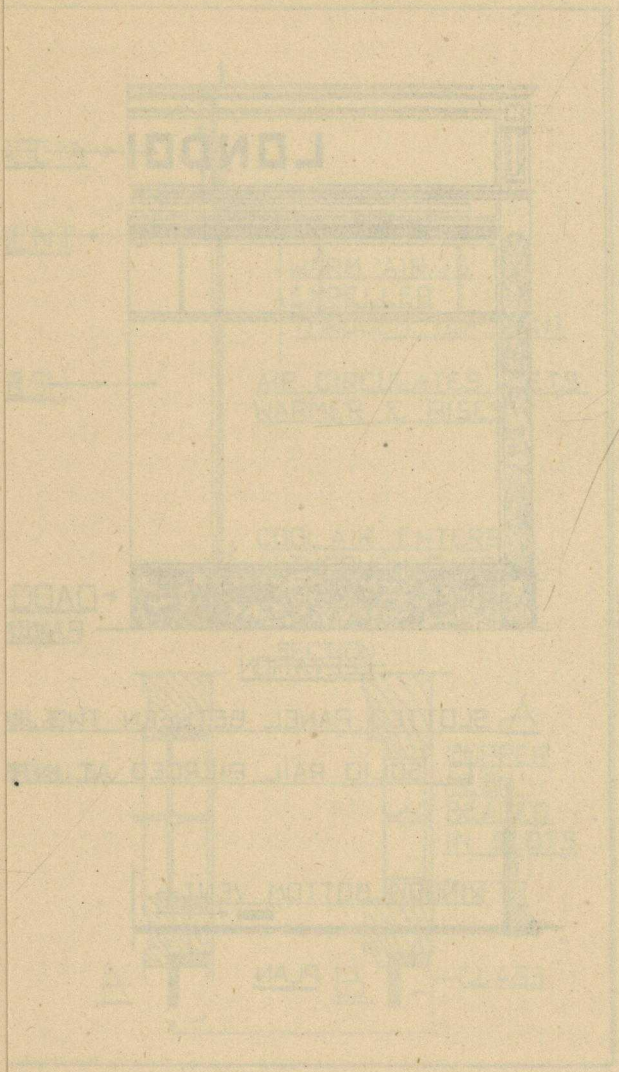

slots, or in some cases it is in the form of a slotted metal strip, beaded in between two head members in the same manner as the sash plate is glazed.

A detail of these two methods appears in Plate XI., illustrating this chapter.

Of course, in many cases where the window space is open to the shop premises which are adequately ventilated, a vent at the sash head is not necessarily required unless the goods displayed are of a very perishable nature, but it is always essential that dado vents should be installed so that the air can circulate freely under the window bottoms, which are always enclosed, to prevent dry rot setting in in the timber framing forming the bearers.

It will be seen from the above remarks that the subject of ventilation as applied to shopfront construction is a highly important factor, and that proper and efficient ventilation can be carried out to a great degree of perfection without the aid of mechanical appliances, such as electric fans, which only circulate the air in their immediate vicinity.

CHAPTER XII

ILLUMINATION

THE illumination of the shop window is to-day one of great importance, and careful consideration is necessary when planning and specifying the lighting system of a shopfront. The shopfront is sufficient attraction during the daytime, but it is the window which is well and tastefully illuminated which is the main attraction during the hours of darkness.

Two factors are essential to attain good results; they are: to arrest spontaneous attention, and to hold conscious attention.

The former is greatly assisted by the simple scientific fact that light is a stimulant, the eye always adjusting itself to the brightest light, with a corresponding spontaneous attention of the senses to it.

There is, however, another factor governing the phenomena of the eye, and that is, that the eye having adjusted itself to the brightest spot, other objects appear darker and not so visible.

It is not the light itself that the shopkeeper wants to sell, and to stimulate attention merely to a bright light has no value.

The light must be reflected light off the goods being displayed, thus attention must not be drawn to the lighting, but to the illuminated articles.

Under these circumstances the lighting should be so arranged as to be as far as possible out of the line of sight of anyone viewing the window, and for the sake of appearance during daylight should be hidden from view, as nothing is more unsightly than electric-light reflectors being visible through the transom or sash plates.

When, owing to design or construction, it is impossible to arrange the lighting system in such a position as not to be visible from the street, cloth, wood, or embossed glass pelmets of suitable design should be provided.

The best kind of pelmet is that made of cloth, usually made up in neutral tinted materials, backed with buckram to eliminate curling which would otherwise be caused by the heat given off by the lamps behind.

A monogram is in many cases incorporated in the design in a thinner material of different colour, so that it has a stencilled effect and becomes illuminated when the lights are switched on.

Pelmets in embossed or sand-blasted glass in modernist designs are now very much in vogue, and have a very attractive appearance both by day or night.

Metal pelmets are very effective, especially if stencilled, but great care should be taken in the design of same so as not to give too heavy an appearance, which would tend to spoil the shop window. In the case of glass and metal pelmets, these are easily fixed by being hooked to strong cup or ruler hooks screwed into the back of the transom or head member of the sash.

Before specifying the lighting arrangements, information should be ascertained from the local authorities regarding voltage of the system employed in the particular district concerned, as these vary not only in power but current, some being A.C., whilst others are D.C.

There are so many and varied types of lamps and reflectors now available for shop illuminating purposes that it is advisable for the designer or architect, as the case may be, to make a collection of as many catalogues and pamphlets as possible, and file them for future use, as no two shopfronts require the same treatment in this respect. As this work is primarily for the design and construction of fronts, it is impossible to go into technical details regarding the various systems of lighting; such a subject would, to be treated properly, form a book on its own, and in doing so would trespass on data already published in electrical text-books, and besides, in all cases the shopfitter only designs and specifies this work, leaving the installation and the supplying of information to the electric-lighting contractor.

It can be safely stated that new ideas and arrangements in connection with illumination are being brought to the notice of all through the various trade journals devoted to the building and allied trades, and basic facts to be considered by the architect and designer are the planning and arranging of the lighting installation.

CHAPTER XIII

EXAMPLES OF MODERN WORK

THE illustrations accompanying this chapter have been selected to show the trend in present-day shopfront architecture, the originals of the examples given having been executed within a few months of the publication of this work, thus being "modern" in all senses of the word.

PLATE XII.

P. H. Johnson Ltd., Temple Street, Birmingham.

The decorative scheme of this front has been carried out so as to be in keeping with the trade carried on, the proprietors being jewellers.

The surround, comprising facia, pilasters and dados, is executed in dark green Tinos marble, the facia having a centre panel of black vitrolite, on which is fixed the lettering, this lettering being of fret-cut Sundeala cellulose, enamelled green, the letters being a dark shade at their bottoms, grading to a light shade at their tops. To overcome the unsightliness of the pavement which slopes, the base of the whole front is finished with black vitrolite. The woodwork is carried out in mahogany, and the sashes and sunblind rail in drawn-bronze metal mouldings. The wall to the right-hand side of the entrance lobby is finished

with a mirror, framed up in mahogany, the lobby soffit being of fibrous plaster and the floor in tiles.

The transom and marginal plates to the door are of

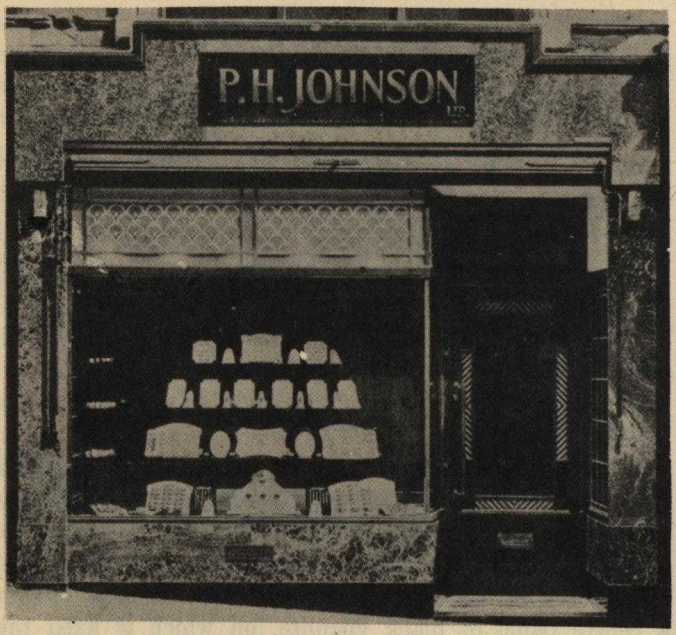

PLATE XII.—An Attractive Jeweller's Shop, Birmingham.
By A. Edmonds & Co. Ltd., Birmingham.

plate glass, double-acid embossed. An outstanding feature in this front is the facia which projects in front of line of pilasters, and is so formed as to embody the sunblind and box. Where the pilasters connect up with the facia, corbels are provided to master the projection.

Plate xiii.

Millicent, New Street, Birmingham.

This shopfront has the simplicity of design which often characterises "modernism," no intricate mouldings and applied ornaments being included.

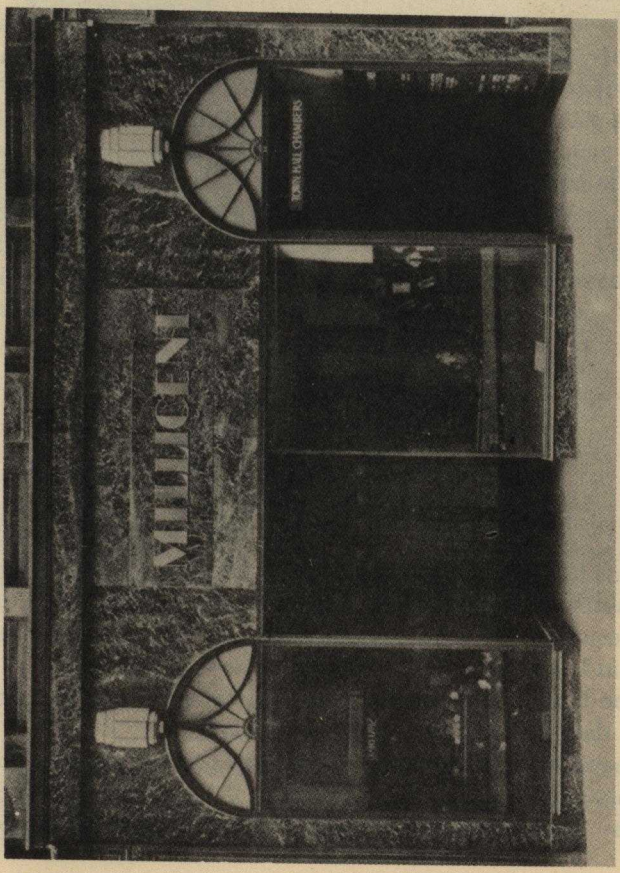

Plate XIII.—A Modiste's Shop, Birmingham. By A. Edmonds & Co. Ltd., Birmingham.

At a casual glance the arrangement of the sashes appears to give the whole an unbalanced appearance, this being due to the fact that the design was governed by the main building. The right-hand entrance is to a number of offices located in the building, the entrance to the shop being placed centrally.

The whole of the surround is carried out in green Tinos marble, the lettering to the facia being in bronze metal. The semicircular heads to the extremities of the front are of obscured glass, each being surmounted with an ornamental lamp. The whole of the sashes are carried out in plain section bronze-metal mouldings. The woodwork throughout is in walnut, the panelling to the windows being veneered with walnut. The soffit to the shop entrance is barrel-shaped having a plaster finish. This is an exceptionally good example of where the design had to be in accordance with the general structural arrangement of the building.

Plate xiv.

Milk Bar, Colwyn Bay.

This front, although of an economical construction, is very attractive and suitable for the trade carried on, which to this country is a rather new inovation which has come to the fore in latter years.

The facia and pilasters are carried out in cream Vitrolite with dados of the same material in black.

The sashes, facia lettering and fittings to doors are of bright stainless steel.

The facia lettering is illuminated at night by concealed

lighting in a trough in the form of a small canopy, which is both novel and effective.

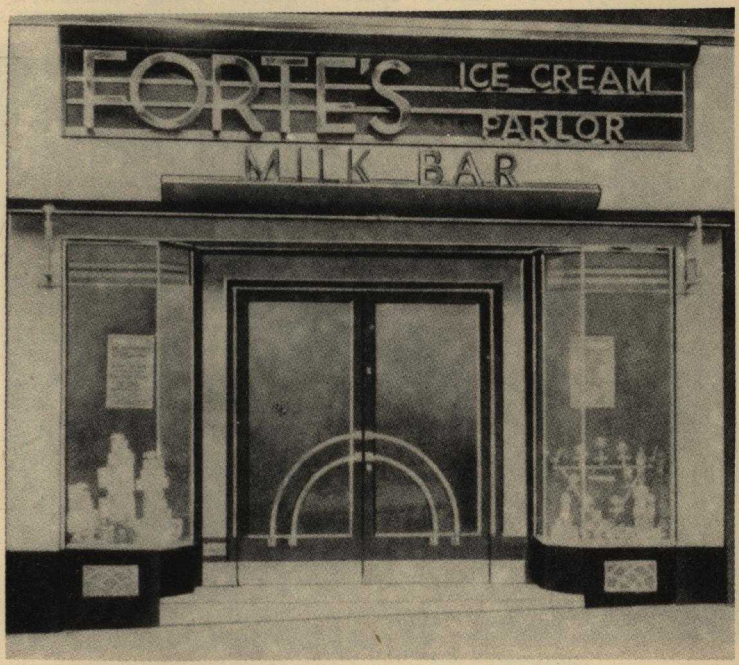

PLATE XIV.—A Milk Bar, Colwyn Bay.
By A. Edmonds & Co., Ltd., Birmingham.

The interior of windows are faced with White Vitrolite panelling and are open at the back giving an uninterrupted view of the interior of the shop.

PLATE XV.

T. B. Ford Ltd., Piccadilly, London, W. 1.

This front is designed for the efficient display of stationery, the window space required being shallow.

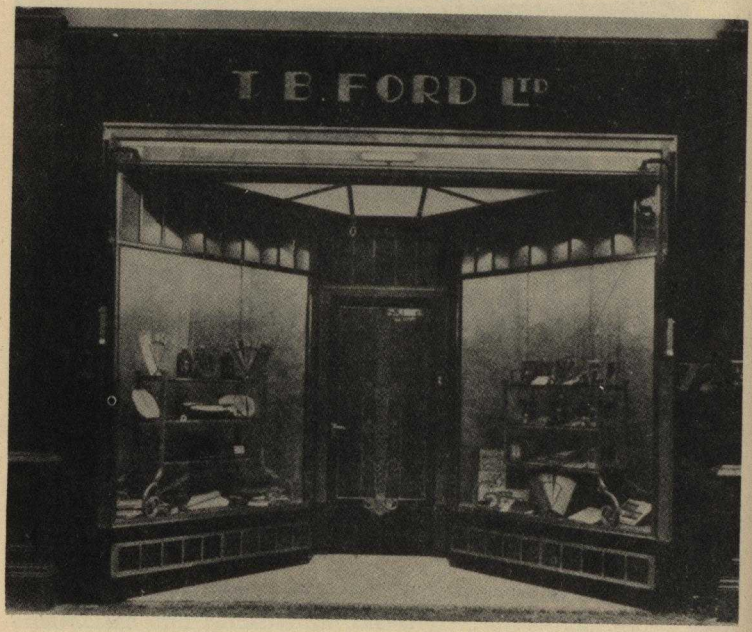

PLATE XV.—A Stationer's Shop, London. By Fredk. Sage & Co. Ltd., London.

This dignified and original scheme is carried out in white metal, the surround being in black marble. The lettering to the facia and the numerals on the pilasters are all executed in white metal. The glass to the transoms is obscured.

Although very simple in design, this front is very attractive and the splayed sashes give ample space for pedestrian traffic in each direction.

PLATE XVI.—A Gent's Outfitters, Birmingham.
By A. Edmonds & Co., Ltd., Birmingham.

This front is designed and planned to meet the requirements of an exclusive man's shop and is both dignified and original in treatment.

The facia, pilasters and dados are executed in Green Tinos Marble relieved with Black Marble linings.

The sash members, and blind rail are of Bronze Metal

drawn on hardwood cores and the angles to the plate glass sashes are of frameless glazing. The facia letters and dado vents are also of natural finished Bronze Metal.

The door, frame and enclosures are of Walnut, french polished a medium shade.

Plate xvii.

Prince and Johnson Ltd., Cheltenham.

This front was designed to harmonize with its Regency setting situated in the tree-lined Promenade of Cheltenham.

The sashes are of drawn Bronze Metal sections surrounded by an Honduras Mahogany architrave with fluted members in the facia displaying the full beauty of this timber. The name appears in V section letters of Bronze Metal finished bright.

The Transoms are of obscured glass set in narrow copper camms and the entrance doors and frames are finished to match the facia in Mahogany.

The whole front sits firmly on dados of Black Granite with a touch of colour in the panelled designed lobby floor, which is in ochre coloured marble mosaic with contrasting border lines and monogram.

The window enclosures are of veneered mahogany panels and the window bottoms lined with soft beige felt.

Plate xviii.

Souster Bros., 88 *High Road, Ilford.*

This shopfront shows the treatment of a corner site. The facias and pilasters are carried out in Roman stone, the facias having black opal panels let in with cream-enamelled bronze-metal letters.

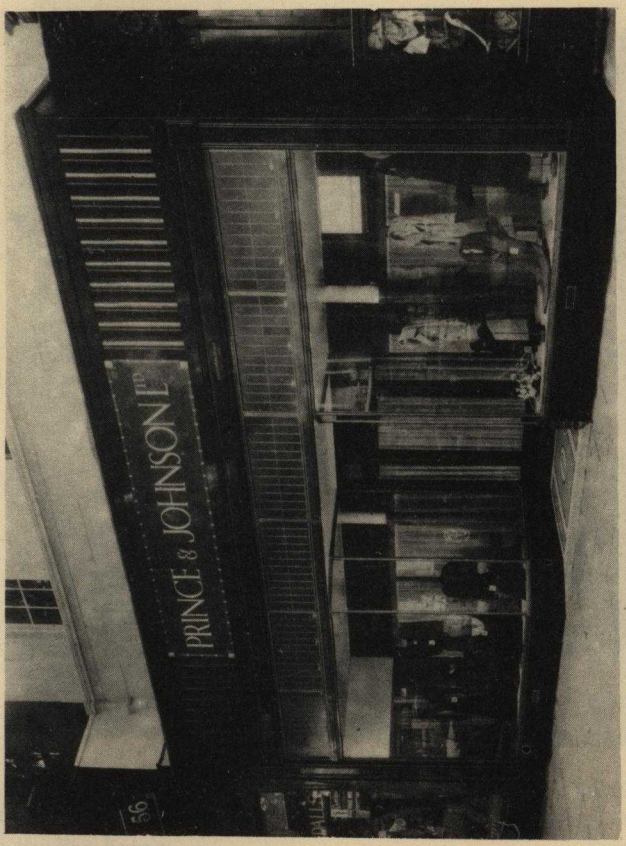

PLATE XVII.—A Ladies' Shop, Cheltenham.
By the Cheltenham Shopfitting Co., Ltd., Cheltenham.

The dados are black marble, with bronze stall plates at sill level. The sashes are of drawn-bronze metal, the door

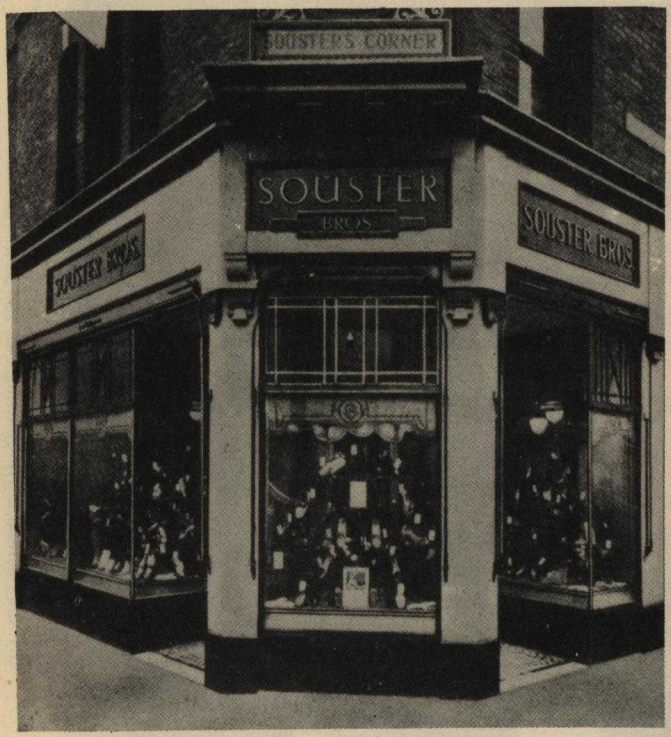

PLATE XVIII.—A Corner Shop, Ilford. By S. Elliott & Sons (Reading) Ltd., Reading

and frame being in walnut. The transome plates are not treated in any way, ornamentation being in the form of tracery bars planted on the face of the glass.

Plate xix

Hodges and Sons (Clothiers) Ltd., Llanelly.

This front was designed for the efficient display of men's wear and embodies a small arcade entrance, thus giving maximum display space to a limited frontage. The whole of

Plate XIX.—A Gent's Outfitters, Llanelly.
By the Cheltenham Shopfitting Co., Ltd., Cheltenham.

the surround is in Black Vitrolite relieved with a white Vitrolite lining.

The whole of the sashes, dado vents, blind rail and door fittings are of stainless steel, the facia letters being recessed to take neon tube lighting.

The heads of the display windows have veneered walnut Pelmets with applied fret cut composition board letters giving a finish without having to resort to a transom. The lobby floor is of Terrazzo with a black border and the name worked in black also.

PLATE XX.—An Art Dealers, London.
By Anselm Odling & Sons. Ltd., London.

PLATE XX.

Frank T. Sabin. 154 *New Bond Street, London W.*1

This front although plain is very modern in design, and suitable for the business carried on, which is that of Art and Picture dealers.

The whole of the surround is of San Stefano Marble relieved with Black Marble and the Show windows glazed direct having no sash bars of any description.

The name is carried out in Bronze Metal letters with a clear glass sash above.

The display windows are recessed and well protected from inclement weather and enables viewing even in the worst of weather without inconvenience.

The entrance doors are glazed from head to bottom rail and finished in bronze.

Plate xxi.

Kodak Ltd., London.

This design of one of the many branches of this well-known photographic firm is both novel and interesting, especially with regard to the treatment of the facia, the lettering of which is in Bronze Metal set in front of a white Vitrolite recess with concealed lighting, which at night illuminates the name by means of reflected light.

The surround is in Dark Swedish Green with a narrow base to the dados of Black Marble.

The sashes are all of Bronze Metal Drawn on hardwood cores. Owing to there being no transom a Bronze Metal finished canopy completes and gives an air of distinction to the front.

The illustrations referred to provide a variety of ideas and suggestions for shopfront treatment, and although only applying to the smaller type of front, are applicable to premises of a more extensive nature.

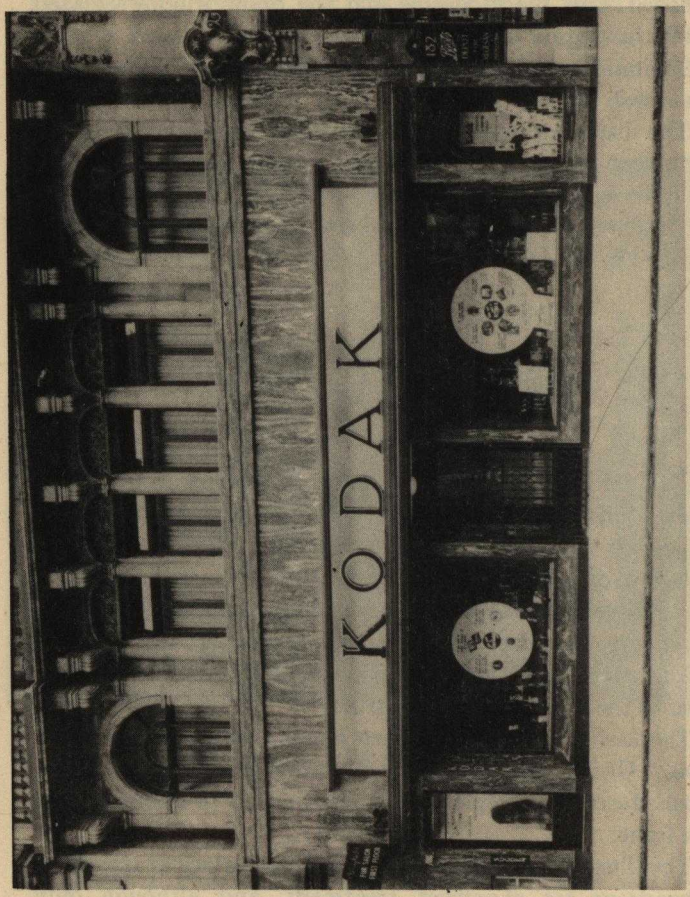

PLATE XXI.—A Photographic Dealers, London. By Anselm Odling & Sons, Ltd., London.

The illustrations referred to provide a variety of ideas and suggestions for shopfront treatment, and although only applying to the smaller type of front, are applicable to premises of a more extensive nature.

CHAPTER XIV

GLOSSARY OF TECHNICAL TERMS CONNECTED WITH SHOPFRONT CONSTRUCTION.

A

Angle Bar . . A vertical sash bar in the angle of a shopfront sash; this applies to either external or internal angles.

Air Shelf . . A false soffit to the interior of a shop window, either glazed or panelled; used mostly in chemists' shops.

Angle Bead . . A head upon the salient angle with a quirk on each side, otherwise a return or staff bead.

Angle Bracket . A wood backing-piece upon which a wood or plaster cornice is built up.

Applied Ornament . An ornamental feature added or attached to the surface as distinguished from an ornament or feature worked in the solid material.

Arch Bar . . A semicircular member of a sash, fixed horizontally.

Architrave . . A moulded border or frame to a door, sash, or other opening.

Arms . . . Hinged or sliding steel bars of a sunblind which operates and governs the throw-out of the blind.

Astragal . . An angle bar of semicircular section to a sash. This applies to external angles only.

B

Backings . . Rough fixing-pieces or grounds for the reception of finished work.

Bar . . . An interior divisional member of a sash, either shaped, horizontal, or vertical.

Bearers . . . Wood framing left in the white, halved together for supporting window bottoms. Also termed legs.

Bed Mould . . A moulding in a pediment or cornice immediately below a deep projection.

Blindbox . . A container for the reception of a sunblind and roller.

Boss . . . An applied ornament of circular shape on the intersection of sash members, usually used for hiding joints as well as ornamentation.

Box . . . An ornamental feature at the extremities of a facia. Generally found in old-type fronts.

Bulkhead . . Back of dado and under side of window bottoms when same are open and exposed to a basement beneath shop, the rough work being boarded or panelled for the sake of appearance and to give a finish to the work.

Bullnose . . Slightly rounded, having arris taken off.

C

Capping . . . A moulding surmounting the top of screening or other joinery work.

Carcass . . . Rough built-up framing forming the foundation for finished work.

Clear, In the . Nett distance between any two given points.

Console . . . An ornamental bracket or support. *See* Box.

Copperlights . . Abbreviated to copperlites. Glazed lights built up in the same manner as leaded lights, but with cames of copper.

CORNICE . . . A moulding running the whole length and surmounting a shopfront.

COVER BOARD . . Rough boarding laid along the top of a cornice extending the whole length and width for the reception of flashings; always used when the front edge of the cornice and facia are some distance from the line of the building.

CRADLING . . Rough woodwork fixed between the flanges of rolled-steel joists, and fixed to the brick or stonework of the building for the fixing of facias and pilasters.

CURB . . . A sub-sill of deal on which the sill of the sash is fixed. This is generally embodied in the window-bottom bearers.

D

DADO . . . The lower exposed part of a front between sill and pavement; also framing and panelling at back of window bottoms to the interior of the premises.

DADO BLIND . . A loose hang-up blind hooked to the sash bars to protect goods on show from the sun, usually used by small confectioners.

DATUM . . . A fixed point from which levels are taken.

DOG . . . A cramp, generally of copper, for fixing stone and marble work.

DOWEL . . . A wooden pin for securing joinery together.

DROPPER . . . An applied vertical ornament, generally taking the form of foliage.

E

ENCLOSURE . . Framing at the back of a shop window.

ENRICHMENT . . Carving of a moulding.

ENTABLATURE . . A stone or marble surround to a shopfront, embodying facia, pilasters, and dado.

ESPAGNOLETTE BOLTS Long bolts which engage at their extremities by the operation of a central key.

F

FAÇADE . . . The front elevation of a building.

FANLIGHT . . A hinged or fixed glazed frame above the transom of a door.

FACIA . . . Generally written fascia. A broad surface above the sash of a shopfront, generally bearing the name of the occupier.

FIRRING . . . Rough woodwork, used for fixing finished work at a lower or different level than the existing surface.

FIXING . . . The work of erecting a shopfront and fittings.

FURNITURE . . Metal door and sash fittings.

G

GLAZED . . . Filled with glass.

GRANITINE . . Imitation granite.

GUARD RAILS . . Metal bars, either horizontal or sloping, fixed at door-handle level across the outer surface of a glazed entrance door, for the purpose of protecting the glass plate and giving a suitable grip for pushing open the door.

H

HANGING SASH . . A lifting sash. Very rarely used now owing to the Ministry of Health Regulations.

HANGING STILE . The stile of a door on which the hinges are fixed.

HALVING . . . A simple method of jointing a framework of timber together, each adjoining piece of stuff being halved into the other.

HEAD . . . The topmost horizontal member of a sash.

I

Irons . . . A term used to denote the exterior metal fittings of a sunblind.

K

Kicking Plate . A metal plate fixed to the outer side of the bottom rail of a door to prevent the woodwork being damaged by coming into sudden contact with the feet of the person opening same.

Knuckle . . . A hinged bracket and socket combined; used for connecting the sunblind arms to the slides.

L

Legs . . . *See* Bearers.

Lobby . . . The area given over to the entrance of a shopfront.

M

Marginal Lights . Glazed framing at the sides of a door embodied in the door frame.

Mullion . . . A vertical divisional bar.

P

Parquetine . . Parquetry prepared in suitable-sized squares on a canvas backing for easy laying and removal.

Parquetry . . Wood flooring formed in geometrical patterns of various hardwoods.

Parting Bead . . A thin slip of hardwood inserted between sliding doors and sashes to prevent dust entering, and giving a good finish to the work.

Patera . . . A small decorated applied ornament, rectangular in shape, similar to a boss.

PEDIMENT . . A decorative feature at the head of a door or shopfront.

PILASTERS . . Piers of slight projection at the extremities of a shopfront.

PLANCEER . . A narrow soffit formed where the sash is recessed back from the face of the facia.

PLINTH . . . A finishing member at the base of a pilaster.

PLUMB . . . Vertical.

PULL-DOWN PLATE . A small metal plate fixed to the centre of a sunblind rail, with a raised ring for engaging a hooked pole for the purpose of operating the blind.

PULL-DOWN POLE . A hooked pole or staff for operating the sunblind; made of ash, with an iron hook at one end.

R

RAILS . . . Horizontal sash members. Also front rail of sunblind.

RISER . . . Vertical or inclined front surface of a step or window bottom, raised above the level of the sill.

S

SASH . . . Glazed portion of a shopfront.

SLIDES . . . Steel bars on which operate the arms of a sunblind.

SOFFIT . . . Ceiling.

STILES . . . Outer vertical members of a door or sash.

STIFFENING BARS Iron bars fixed behind vertical sash members for strengthening the sash framing; used when sashes are of great height or width.

STAY-BARS . . Iron bars used for holding shopfront gates rigid.

STRAPS . . . Metal fittings for connecting the arms to the rail of a sunblind.

T

TRACERY BARS . Wood or metal bars planted on to the faces of door or transom plates, in the form of a design.

TRANSOM . . . An intermediate glazed portion of a sash.

TRUSS . . . An ornamental wood bracketing or corbel supporting an overhanging feature.

V

VENEER . . . A thin layer of superior wood glued to the surface of an inferior piece.

VENT . . . Ventilator.

VENT RAIL . . A horizontal sash member perforated to form a ventilator at the head of the sash.

W

WEATHERING . . The sloping of an exposed surface to throw off the rain.

WINDOW BOARD . Boarding covering the bottom of a window, forming a bed for parquetry, linoleum, or felt.

WING BLIND . . A side blind hung from the sunblind to give more protection to the display windows.

CONCLUSION

THE treatment of such a subject as shopfront design and construction is one in which it is really impossible in a work of this description to cover all points which may arise in actual practice. Such a work would, without doubt, fill volumes, and then never meet every case, as all buildings, whether old or new, have some feature which is different.

Also, there is always some new material appearing on the market, in addition to the fact that the designer or architect has unlimited scope.

But no matter, whatever the design and the materials used, the principles of construction will to a certain extent always remain the same.

The example given in these pages regarding the work entailed in the construction and erection of a small front embodies all the principles which arise in all classes of work, whether it be an arcade front or a small front of the average type.

The aim of the author throughout this work has been to place before the reader facts and data in the most concise form, which although in some chapters err on the side of briefness, are fully compensated by the illustrations, prepared in such a manner as to be self-explanatory.

It is a recognised fact that in a text-book of a technical nature, interest is soon lost if the information is not given in a straightforward and concise manner, and it has been

the endeavour to overcome this difficulty by giving the most necessary and basic facts, so that any particular item can be ascertained without wading through a host of detail leading up to the required subject.

The photographic illustrations show the modern trend in shopfront architecture, which is a distinct breaking away from old traditions still in the memory of the present generation.

In fact the shopfront has now become an architectural feature of an entirely different form than has ever been known before in the whole history of building.

The whole of the facts and data contained herein are the result of many years' experience, both practical and theoretical, in this specialised branch of the building industry, together with information given by shopfitting firms of repute.

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